WHITE PAPER

PROPOSALS FOR AN INDUSTRIAL AND SCIENCE STRATEGY FOR ALBERTANS 1985 to 1990

July, 1984

Alberta

GOVERNMENT OF ALBERTA

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FOR AN INDUSTRIAL
AND SCIENCE STRATEGY
FOR ALBERTANS
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Section I

Purpose of this White Paper

SECTION I – PURPOSE OF THIS WHITE PAPER

On August 30, 1971, when the people of Alberta elected a new Progressive Conservative Government they supported "New Directions for the Seventies", the platform of the new government party.

These "New Directions" contained, for the first time, the essence of an industrial strategy for Alberta. In a public address on September 6, 1974, Premier Lougheed described the strategy for implementing these new directions. He also confirmed its fundamental points to the Legislature on October 23, 1974.

As a consequence of many factors, both positive and negative, that have altered the economic scene in Alberta since 1971 (see Section II), the Alberta Government concluded that it was time to reassess the existing industrial strategy and to consider the need for an updated and integrated industrial strategy. As the Premier noted in the Legislature on October 19, 1983:

> "We came to a conclusion over the course of the spring and summer that for these and other reasons – the market changes, the technological developments, the other factors involved – it was an appropriate time for us to reassess Alberta's economic strategy, to take stock of our accomplishments, our setbacks, the changes that have occurred, the opportunities involved, the competitive position of the province for the balance of the '80's."

Requests for submissions have been made to many Alberta organizations and associations for their views on modification to the existing industrial strategy and those views have been carefully considered.

It has become evident that a new, specific Science Policy is required for Alberta at this stage of our development and for this reason this White Paper is referred to not just as an industrial strategy, but as an Industrial and Science Strategy for Albertans – 1985 to 1990.

This document has the target of 1985 to 1990 for a very specific reason. It should not be considered as a strategy to respond to current economic circumstances within the province. Certainly the Alberta Government has taken measures to address current economic concerns as detailed on the following pages, but this White Paper is intended primarily as a strategy for industrial activity and encouragement of the scientific community between 1985 and 1990.

The current basis of Alberta's economic policy is set forth in the Budget Address of March 27, 1984. The forecast for 1984 is for a year of significant economic recovery from the downturn of 1983, but it is not expected that by the end of the year there will be economic recovery to the peak levels of the 1979-81 period, especially in some sectors. As noted in the 1984 Budget Address the necessary adjustments to over-building in some sectors will take time to absorb. The rate of unemployment, particularly in the construction and the construction related fields, will remain close to the national average for some time. The 1984 Budget Address also notes that the provincial government does not want to encourage a return to the peak levels of 1979-81, because such extreme peaks are invariably traded off against subsequent downturns.

The 1984 Budget addresses current economic concerns with a number of significant responses including the following:

1. A capital construction program of approximately three billion dollars which on a comparative basis is the largest of any Canadian provincial budget. The Government's fiscal policy is to sustain capital expenditure during current economic conditions.

2. Supplementary operating appropriations that stimulate the construction industry through housing allocations and some special programs like the Senior Citizens Home Improvement Program.
3. Extensive, special job creation and manpower training programs for those not employed during this adjustment period.
4. Expansion of student assistance programs to help young Albertans during this period of adjustment allowing them to develop new skills and knowledge.
5. No new taxes or increase in existing taxes to assure that "take home pay", after provincial taxes, remains the highest in Canada, which among other benefits helps stimulate high per capita retail sales.

Since the Budget, a number of other initiatives have occurred which respond both to immediate economic concerns but also reflect new and modified strategies for the intermediate term. Examples are:

1. The conventional oil and natural gas incentive programs announced in the Legislature on March 29, 1984.
2. The introduction on May 14, 1984 of a new Small Business Equity Corporations Program to encourage the provision of private sector capital for small business.
3. The position of the Alberta Government to authorize large government loan guarantees for the important Husky Oil Upgrader Project near Lloydminster on June 6, 1984.

This document also reflects the Alberta Government's submission to the Royal Commission on the Economic Union and Development Prospects for Canada, the Federal Government's evaluation of its national economic prospects and political processes. Alberta presented its submission entitled "Alberta in Canada – Strength in Diversity", in the Fall of 1983.

The Canadian Parliament and provincial legislatures have developed a tradition of using government "White Papers" as a means of generating debate and soliciting public input on a range of public policy issues. These documents are prepared by governments proposing policies or strategies for the future to which the governments are not committed, but which are presented to the legislators and the public for the purpose of consultation and discussion.

This document is a "White Paper." The Alberta Government encourages responses from individuals, organizations and interest groups. We intend to conduct a series of public forums across major centres in the province to stimulate debate and discussion. After thoroughly reviewing responses to the White Paper we shall present an Industrial and Science Strategy for Albertans – 1985 to 1990, as a government position paper or series of position papers.

Section II

Changes Affecting Alberta's Economy Since 1971

SECTION II – CHANGES AFFECTING ALBERTA'S ECONOMY SINCE 1971

Since 1971 there have been many major changes and developments which affect an assessment of the nature of an industrial and science strategy appropriate for Alberta's future.

NEGATIVE FACTORS

1. The Federal Government's National Energy Program of October 28, 1980 – despite significant negotiated modifications and amendments – discouraged private sector energy investors particularly from outside of Canada. It also created an "unreal" world of acquisition which took some key players out of the action – diverted artificially, by grants, expenditures from provincial to federal lands – and taxed the petroleum industry in a much more onerous manner than is the case with the other Canadian industries.
2. Construction and real estate have become such a disproportionately large segment relative to the total Alberta economy that this segment cannot be sustained during normal economic conditions. Too large a proportion of the labor force is dependent on construction and related services.
3. As a result of the recent "boom" psychology, wage rates in certain sectors have become out of balance with other parts of North America rendering us, in part, non-competitive in these sectors.
4. Our key markets for natural gas sales in the United States were adversely affected during 1982-83 as a result of conservation, energy substitution, their economic recession and uncertain legislative environment.
5. Adjustments were made to freight rates, particularly for agricultural products; but distortions remain, delaying promising diversification and growth prospects for the agricultural processing industry in such products as boxed beef, canola oil and meal, and for other areas of food processing where natural advantages exist for Alberta.
6. Agricultural markets in Europe particularly for wheat, receded due to the vast subsidies provided by the European Economic Community's Common Agriculture Policy which created France as a new world grain exporting competitor.
7. The last round of the Multilateral trade negotiations of the General Agreement on Tariffs and Trade, completed in 1979, resulted in only marginal benefits for Canada and for Alberta in particular, in terms of opening up new export market opportunities for Alberta's products and services.
8. Relations between Canada and the United States became strained over the changing of the understood rules for investment as a result of the National Energy Program and the Foreign Investment Review Agency (F.I.R.A.) and for other reasons as well. Canada is no longer treated as having a special and favorable relationship by the United States Congress in those trade matters important to Alberta including such areas as agriculture, forest products and petrochemicals.
9. Because of poor job prospects in most other parts of Canada, many unskilled people moved to Alberta in recent years in the hope of finding a job, only to discover that an adjustment to the "boom" was already underway in Alberta and fewer jobs were available.
10. As a province highly dependent upon private sector investment, the Bank of Canada's monetary policy of high real interest rates has been a major negative factor for the Alberta economy.

11. Traditional financing structures are not fully responsive to the needs of an economy which is so dependent on commodity exports for its gross domestic product.

POSITIVE FACTORS

1. In 1971 there were only 643,000 people employed in Alberta. In May, 1984 despite unemployment at about the national average there were up to 1,111,000 employed in Alberta. This is a startling 72.8% increase in the number of jobs in Alberta compared to an average increase of 34.3% for all of Canada during the same period.
2. Agricultural producers, as family units, continued to improve their productivity and hence their competitiveness in world export trade.
3. Alberta emerged as the world leader in the technology of synthetic oil with the successful construction and operation of the Syncrude Oil Sands Plant as well as the expansion of the Suncor facility.
4. The Alberta Oil Sands Technology and Research Authority has developed into an effective research and development agency with good prospects to assist the private sector in developing the potential for new oil sands mining and in-situ projects, heavy oil deposits, and enhanced oil recovery projects.
5. Alberta's natural gas explorers made numerous and major discoveries of new large fields of natural gas, such as the Elmworth field, altering dramatically the province's proven energy reserve position.
6. Explorers for new conventional oil who remained positive about Western Canada confirmed their wisdom with significant discoveries, proving the potential for even more substantial oil reserves to be discovered in Alberta.
7. The Canadian oil and gas industry developed a high level of technical skill and knowledge in numerous areas such as sour gas techniques and tertiary recovery methods, that are marketable on an international basis.
8. A major new Alberta based and owned player – the Alberta Energy Company, with assets of over one billion dollars — emerged with the capacity to participate in large scale Alberta projects.
9. From almost a standing start in 1971, Alberta produced the major segment of the petrochemical industry in Canada based both on ethylene from natural gas as well as fertilizer and methanol from natural gas.
10. Step by step Alberta has been building a base for technology and the necessary "critical mass" of scientists. Supplementing the Alberta Research Council and Alberta universities, and the large and small private sector high technology firms, has been the Alberta Heritage Foundation for Medical Research.
11. The province since 1971 has substantially expanded its capacity to train our young citizens for a broad range of skilled jobs both through institutional facilities, such as our technical schools and community colleges, as well as on-the-job training and apprenticeship programs.
12. The agriculture industry has evolved by building a foundation for food processing and specialty products through irrigation expansion in areas of dry land; credit to new product enterprises; and through concentrated research on certain areas of natural advantage. The canola and alfalfa industries are leading examples.
13. The tourism industry has expanded its capacity to handle an increased volume of visitors to emerge as a segment of the Alberta economy which makes a significant contribution in job opportunities and small business activity.

14. The forest products industry has shown its ability to sustain existing production even in difficult cyclical periods – to open up opportunities for new plants and products, and to explore the promise of the economic use of Alberta's vast undeveloped reserves of hardwood.
15. On the strength of Pacific Rim development, new coal mines have been established to respond to coal export opportunities. Alberta producers have established a strong reputation for consistent quality of product and reliability of supply.
16. Alberta based financial institutions in the private sector have come onto the scene, both in the form of Canadian owned institutions and foreign banks, to expand with the Treasury Branches the availability of capital to finance new opportunities.
17. A number of new initiatives have been taken to fill the void of inadequate venture capital, through such entities as Vencap Equities and the Small Business Equity Corporations provided for in recent legislation.
18. The Pacific Rim including Japan, South Korea and China, has now become a major market opportunity for many Alberta products and services with Alberta's geographic position giving us a natural advantage.
19. Citizens of the province have become increasingly aware of the direct link between their own prosperity and job security with the need to effectively market our products and services throughout the world. Thus they have become supportive of both government and private sector initiatives in the international trade area.
20. The province, with few exceptions, has put in place throughout all the regions a vast infrastructure of transportation, utilities, communication, training, health care and other essential services capable of servicing a developing and maturing provincial economy.
21. Canada's western transportation system has been improved to facilitate shipment of Alberta's products such as grain, coal, sulphur and lumber, with such facilities as Robert's Bank and the Prince Rupert grain and coal terminals, as well as Alberta's own road and storage facilities.
22. Alberta has developed an aptitude, despite its population, to more significantly influence national decision making in political, industrial, scientific, marketing and investment matters.
23. Evolving from the spectacular growth pattern of the seventies, have emerged scores of talented entrepreneurs and managers, well placed to capitalize on the opportunities ahead for Alberta.
24. The Alberta Government has developed, through the Heritage Savings Trust Fund, the financial capacity, if required, to encourage new and different industrial developments.

Section III

Economic Overview

SECTION III – ECONOMIC OVERVIEW

A – INTERNATIONAL AND NATIONAL FACTORS AFFECTING ALBERTA

1. THE BACKGROUND TO THE WORLD ECONOMIC DOWNTURN OF 1982

Recent years have witnessed dramatic changes in world economics, with more than the usual shifts, adjustments and reappraisals in trading relations among nations. After an unmatched period of strong economic growth and development, the world economy experienced a major economic downturn in 1981-82 as a result of a number of factors, of which the following are significant:

a) A determination by the United States monetary authorities to break the inflation psychology with dramatic increases in real interest rates.

b) Lax credit practices by large international banks in granting credit to many countries.

c) The impact of the second O.P.E.C. oil price increase of 1979 arising out of the 1978 Iranian Revolution.

The downturn was worldwide and created major economic changes in many countries including debt payment default, falling commodity prices, negative economic growth and substantial increases in unemployment.

The consequences and responses to these circumstances have varied. In the United States, the impact was positive with a very substantial decrease in the rate of inflation and major economic recovery beginning in 1983. However, the United States recovery may be slowed in 1985 by both its large Federal Government deficit and the massive American trade deficit.

The European and Japanese economies have recovered in varying degrees but the high level of real interest rates and lost export markets (both with debt burdened, less developed countries as well as with oil exporting countries) have retarded their recovery. For an extended period many of the less developed countries will remain in difficult circumstances coping with their debt repayment arrangements.

This downturn was felt in **Canada** in late 1981. By 1982, the economy continued to worsen with six consecutive quarters of decreasing real Gross National Product. Those sectors of the economy hit hardest included the business investment and residential construction sectors. The stock of inventories declined by close to $10 billion in 1982, as businesses adjusted for reduced business investment and sharply lower consumer demand. Unemployment in Canada rose to 11% in 1982 from 7.6% in 1981, while the rate of inflation as measured by the Consumer Price Index moved down only from 12.5% in 1981 to 10.8% in 1982. Restrictive monetary policies in Canada further curtailed business investment decisions. The Canadian dollar came under pressure as a result of the out-flow of funds to the U.S. prompted by a number of factors including the National Energy Program's anti-foreign investment provisions. All in all, a period of difficult adjustment for Canada, with major effects on many economic sectors.

2. INTERNATIONAL DEBT OVERVIEW

During the decade leading up to 1982, there was a dramatic expansion in the amount of international debt owed by developing countries. These countries, such as Brazil, Argentina and Mexico, borrowed heavily to finance large deficits incurred in support of rapid devel-

opment of their domestic economies. In part, these funds were needed to allow these economies to adjust to the O.P.E.C. oil price increases, as most lesser developed countries were net importers of crude oil, which again increased trade deficits. At the same time, the recycling of O.P.E.C. "petro-dollars" provided additional pressure upon the world banking system to invest billions of surplus American dollars. The developing countries were a popular target for this investment.

This all had to end, and 1982 was the year of a world financial adjustment, with some bank failures and rescheduling of debt payment by Mexico, Brazil and others.

Almost all governments are experiencing annual budgetary deficits caused by the recession and reduced aggregate revenues. It is difficult to curb spending patterns established during an inflationary period, especially social or redistributive programs, since the recipients of these programs have even greater needs during economic dislocations. The cost of servicing long-term debt is not just an excessive burden to lesser developed countries. Major industrial countries including Canada and the United States, face difficult and serious problems arising from their own fiscal positions.

3. CANADA – OUR DEFICIT HEADACHE

The International Monetary Fund recently criticized Canada for the relative level of debt compared to other countries; "In relation to the current value of national output, by far the largest interest payments are those of Italy and Canada, equivalent to about 9 per cent and 7 per cent of Gross Domestic Product". France and West Germany, on similar measurement, pay approximately three per cent of economic output to cover the costs of debt servicing.

The current Canadian deficit projected to be near thirty billion dollars for this fiscal year, will add to the accumulated federal deficits which will approach $180 billion, one of the highest per capita debts of any advanced nation. The continued expansion of government deficits in Canada at all levels of government, presents serious long-term problems for economic development. The cost of service and repayment of long-term debt to foreign sources negatively affects the country's balance of payments. Moreover, the pressure placed on the financial sector to provide funds to finance Government deficits, pushes out the private sector seeking funds for real capital formation. Presently, governments in Canada are able to finance deficits by using shorter-term Treasury Bills. There is a substantial pool of funds now available to support these issues, since the private sector is deferring investment decisions and not competing for financing from the same source. Should recovery continue, the competition for funds between governments and the private sector will drive up the cost of borrowing, reducing the optimum allocation of resources within Canada, and limiting the scope of stimulative policies which governments may deem necessary. Unless the aggregate deficit is steadily reduced, serious long-term problems for Canada result. Our prosperity depends upon our price competitiveness in world markets. As taxes are increased to pay for any expanding government debt and repetitive deficits, the essential competitiveness is eroded. Concurrently, investor confidence will substantially diminish.

4. INTERNATIONAL TRADE OVERVIEW – THE CURRENT SITUATION

International trade is essential to the prosperity of all nations. Since the end of World War II the growth of international trade has been more rapid than economic growth generally. In the case of the developing nations, trade will account for a significant portion of annual real economic growth through the next decade (e.g. 25 – 30% estimated in the case of South Korea). The difficulty, which has evolved as a result of the current world financial tension, is that most governments are heavily committed to a range of domestic subsidization programs. In particular, the agricultural and textile sectors of most industrialized countries receive substantial assistance in one form or another to counter external competitors

employing low-cost labor or new, advanced technologies. Retaliation and protectionism are common phenomena and very expensive to maintain. Moreover, it is contrary to the principle of "free trade" and contrary to the objectives of the General Agreement on Tariffs and Trade.

Any further protectionist moves by the U.S., or other major trading countries, could have a very negative effect on Canada's and Alberta's trade expansion opportunities.

The U.S. and Japan, as the world's two largest trading nations, shape and influence much of world trade policies and practices. Both the U.S. and Japan employ to varying degrees: industrial subsidies, countervailing duties to offset subsidies on exports, anti-dumping duties and a variety of other import control measures.

This is the real world of international trade. The future of Canada and Alberta in this area must be keyed to our success in penetrating these markets with world level technology, fully reliable export capacities and transportation networks, and a skilled, highly productive domestic work force. The world trading game is becoming much more competitive and tough.

5. THE CANADIAN TRADE SITUATION – PROBLEMS AHEAD

Canada as well, is quite protectionist. We are all very familiar with the nationalistic policies of the current Federal Government over the past four years. American responses, in particular, have been strongly opposed to some of these Canadian initiatives, specifically the National Energy Program, and the Foreign Investment Review Agency which discriminated against and discouraged foreign investment. However, Canada has also evoked traditional protectionist policies designed to protect local industries and employment. A few years ago, a C.D. Howe Institute sponsored document summarized Canada's position on protectionist trade practices and the overall inefficiences in our manufacturing and production of end products:

- "In nearly half of Canada's manufacturing industries, protection remains virtually the same, or has increased."
- "Canadian labor earnings are higher, relative to U.S. earnings, than warranted by Canadian productivity, relative to U.S. productivity."
- "Capital is being used much less efficiently in Canada than in the United States."
- "The vulnerable, labor-intensive industries that survive through high levels of protection have expanded in Canada."

(See 1980 document – "Canada in the Changing World Economy" by B. W. Wilkinson of The University of Alberta).

The Tokyo Round of Multilateral trade negotiations clearly has been negative to Canada's manufacturing industry with essentially ineffective provisions for access to the huge and expanding markets in Japan, the European community, and the U.S. An economic forecast, based on Canada's record of performance in manufacturing trade, cannot be very optimistic.

6. WORLD ECONOMIC OUTLOOK

However difficult the global economic situation during 1982, the world economy appears to be now on the move again and real economic growth is taking place in most industrialized countries.

The inflation rates of most industrialized countries have subsided more quickly than expected, but this is largely a result of the world downturn. Although the nominal rates of interest have fallen from the peaks of 1981, the drop has not been as sharp as the relative reduction in inflation rates. Consequently, real interest rates, the interest charged above a nation's rate of inflation, have remained at historically high levels.

The turnaround in the various national economies can be explained by a number of factors such as reduced inflationary rates. However, because of the high levels of real interest rates, the level of investment has remained relatively weak with the exception of the United States. While some new inventory build-up has taken place, the big dollar investments in buildings and machinery have been deferred in most countries. Clearly, much unused capacity exists in all sectors in most countries, and only sustained real economic growth can solve this problem and trigger new investment once again.

B. THE ALBERTA ECONOMY – ITS NATURE AND FOUNDATIONS

1. THE ESSENCE OF THE ALBERTA ECONOMY

Any evaluation of possible change in Alberta's Industrial Strategy requires a realistic assessment of the current basic features of the province's economy. They are:

a) The vitality of the Alberta economy has been and will continue to be the oil and gas industry.

b) Even with substantial progress in economic diversification, the significance of the oil and gas industry will continue, but dependency can be reduced.

c) The primary agriculture industry should maintain its significant contribution to the Gross Provincial Product. Its stabilizing influence upon rural communities will continue to be very important.

d) Emphasis on economic diversification will broaden the scope of jobs for young Albertans but should not be viewed as a panacea to avoid realities.

e) The growth of most service industries will continue to depend heavily upon the oil and gas industry and this will be particularly so for the building construction and housing industry.

f) International economic factors such as the United States interest rate policy, O.P.E.C. oil pricing, the Chicago Board of Trade grain prices, and the Chicago livestock market will continue to be very important variables for the Alberta economy.

g) Canadian national energy policy modifications will continue to be the prime political factor in accessing job opportunities for young Albertans.

h) The return to a relatively high level of private sector confidence and investment in the Alberta economy will be fundamental to the security of employment in the province and continued fiscal responsibility by the province will be required.

2. THE CURRENT STATE OF THE ALBERTA ECONOMY

As the Budget Address of March 27, 1984 stated, "1984 will be a year of economic recovery". However, it will be a year of recovery not a return to the boom period of 1979 – 81. It will also be one of several years where the excess inventory of offices, commercial space, homes and apartments must be absorbed. The result will be that Alberta's rate of unemployment for those seeking work in construction or construction related fields will be at or near the national average.

For those assessing economic recovery in 1984 primarily on the basis of rates of unemployment – their conclusions will be pessimistic.

For those assessing Alberta's economic recovery in 1984 on the basis of growing strength in the primary oil and gas industry – their conclusion will be positive.

As the Budget Address noted, "The fact is that Alberta is in transition from a period of super-heated artificially high growth to one of more normal sustainable growth." It should be noted that even so, Statistics Canada forecasts that for 1984 Alberta, with under 10% of the population, will still account for 20% of Canadian construction.

This section includes an assessment of the major elements of the Alberta economy. Two specific sectoral reviews are included, since both the energy sector and the agricultural sector are fundamental to our overall economy, with extensive direct and indirect effects on a number of service sectors. Similarly, because of the significance of investment to our Gross Provincial Product a specific evaluation is enclosed. In recognition of Alberta's potential in International Trade, a part relating to the importance and to the variables in International Trade is also included. This section concludes with a review of other elements of the Alberta economy, indicating the breadth of activity.

3. INVESTMENT – THE KEY FACTOR

As previously noted, the achievement of a high level of private sector investment in the Alberta economy is fundamental to job security for many Albertans.

However, as the 1984 Budget Address noted in reference to the current adjustment period:

> "Nowhere was the need for adjustment greater than in the area of investment. Spurred by the rise in energy prices, investment grew by leaps and bounds in the late seventies and early eighties. There was very rapid growth in investment by our oil and gas industry. Commercial building quickly increased due to the surge in business activity. Investment in new homes and apartment buildings accelerated to provide shelter for a rapidly increasing population. As a government, we were obliged to increase our capital expenditure for health, education, transportation and other infrastructure to meet the requirements of the fast-growing population.
>
> The result was that the share of the Gross Domestic Product made up by investment reached unsustainably high levels. By 1981 nearly 40 cents out of each dollar spent on goods and services in Alberta went to investment compared to 24 cents for Canada as a whole. It is not realistic to believe that we could have sustained such abnormally high levels of investment."

Alberta led the other provinces in private sector investment in 1982. But in the near term the decline in commercial and housing investment will be significant. Also the magnitude of public sector investment by the provincial government will stabilize.

The outlook for an adequate level of private sector investment to sustain Alberta's economy and security of jobs for the medium term will require Alberta to develop strategies to cope or adapt to several factors:

a) Anticipated levels of real interest rates.

b) Strengthening of natural gas markets, particularly in the U.S., and the inevitable increase in natural gas drilling activity that will flow from such improvement in market circumstances.

c) Potential for non-conventional oil projects both in oil sands and heavy oil.

d) Federal Government policies towards foreign investment and energy resource development.

4. THE OIL AND GAS SECTOR – THE ENGINE FOR GROWTH

Alberta's economy has been heavily energy based for the past decade. Major investments within the province have been in the energy sector, while the service and processing industry grew and expanded around the energy industry. The dramatic changes in the world

oil scene since 1982 have had negative impact on the real economic growth of the province. Adding to the world economic problems affecting the energy industry was the imposition of the Federal Government's disastrous National Energy Program of 1980; an unparalleled intrusion into the jurisdiction of a province, which compounded the difficulties facing the oil and gas sector from the international structural changes. Obviously this combination of forces has had a serious negative impact on the province's economy resulting in reduced economic growth, unemployment and increased Provincial Government deficits.

It should be noted that the 6% decline in free world crude oil consumption since 1981, is a combination of several economic factors: world wide economic recession; conservation resulting from a decade of real price increases; the draw down by oil companies and governments of their traditional oil inventory cushions; and inter-fuel competition and substitution of oil by coal, electricity and natural gas.

All these variables, in some part, explain the world reduction in demand for crude oil. The single most important variable is likely the structural changes in most economies which will have fairly long-term impact on demand. As the major Canadian supplier of energy from hydrocarbons, Alberta is the key player in developing energy strategies to move Canada towards energy self-sufficiency. Canada continues to import between 20% to 27% of its oil needs depending upon economic demand factors. Alberta currently produces about 1.2 million barrels of crude oil a day, which is nearly 85% of the total 1983 Canadian production. Therefore, the forecast of the reserve supply of oil and natural gas in Alberta is a significant factor for Canada's overall strategic economic plan. Clearly, the forecast as well is crucial to the province's economic vitality, as the form and timing of investment in non-renewable energy resources will impact directly on the rates of our economic growth.

The most recent projections of the Energy Resources Conservation Board (Alberta Oil Supply Report, December 1983), forecasts that Alberta's supply of crude oil from conventional sources will continue to decline over time. While the current provincial royalty regimes and incentives and pricing assumptions should result in a sustained level of exploration and development of Alberta's petroleum resources, the decline of conventional supply can only be offset by major new discoveries which are impossible to predict.

However, as conventional oil supply declines in Alberta, alternative sources of energy should expand. Investments in the oil sands and heavy oils have again become quite attractive and also necessary, if Canada is to obtain oil self-sufficiency. The June 6, 1984 announcement of the large Husky Oil Upgrader at Lloydminster is a very important development. Recent geological developments have led to the conclusion that the supply additions to the Canadian total crude oil will not be increased significantly by Frontier or East Coast sources until into the next century. Synthetic crude oil from Alberta should significantly increase from current levels.

The investment generated in synthetic oil production will thus be important to the long-term performance of the Alberta economy and this resource will provide a major competitive advantage for Alberta for at least the next two decades. Alberta, with its vast energy supplies of synthetic oil, heavy oil and natural gas, will be the prime beneficiary of the expected billions of dollars of energy investment anticipated over the balance of the century.

Alberta has vast reserves of natural gas, and these reserves have expanded significantly since 1975, with our established revenues alone exceeding 65 TCF in 1983. Although sales and reserve additions both decreased in 1983, it is expected that overall sales should increase moderately in 1984. The American export market is a key to long-term success and profitability of the natural gas sector in Alberta. The advantageous location of the Alberta supply and in-place economical pipeline connections with markets in California and the central United States positions us well for expanding long-term markets. Also Alberta has a window of opportunity to develop a new market in the eastern seaboard of the United States. The current soft markets in the U.S. are expected to firm, as a result of reduced domestic

American supply deliverability by the mid 1980's and beyond. Exports from Alberta should expand substantially.

Of all the changes requiring a re-evaluation of Alberta's Industrial Strategy, as identified in Section II of this White Paper, the most important may be the change from concern in the early 1970's for adequate natural gas supply to the current situation of positive supply forecasts and thus the need to develop new natural gas markets.

The one vital element of the world's economic variables which will most affect Alberta over the next five to ten years is the question of long-term world oil and gas supply/demand equation. Throughout the 1970's the world was obsessed with world oil scarcity and the pervasive wisdom of imminent resource exhaustion. Each price increase by the O.P.E.C. nations led to a variety of responses ranging from direct intervention by government into the oil and gas industry to the accelerated review of alternative energy options.

Then the perception changed dramatically during the winter of 1982-83 as demand for oil continued to fall and non O.P.E.C. supply expanded. These new circumstances threatened the fragile O.P.E.C. alliance in January 1983 and by their March meeting in London some observers were forecasting both an O.P.E.C. collapse and a "free fall" of world oil price, then at $34.00 (U.S.) per barrel. Neither happened – the price was stabilized at $29.00 (U.S.) per barrel and O.P.E.C. has worked out an elaborate production quota arrangement.

By the last quarter of 1983, consumption finally started to rise again and the current forecast, subject to expanded hostilities in the Persian Gulf, is for world oil prices to remain stable for the next few years rising only at about the rate of U.S. inflation. Some forecasters though, anticipate that if the world economy remains relatively strong, the perception will change once again as non O.P.E.C. supply appears to have peaked – and oil prices could rise more rapidly toward the end of the decade.

5. AGRICULTURE – STABILITY FOR THE PROVINCE

Agriculture is a vital industry in Alberta, and includes primary production and agricultural processing. Building upon our natural competitive strengths in agriculture we have the opportunity to process more of our raw products here, rather than export in unprocessed form without additional value added. The canola industry's evolution since 1971 is a good case in point.

Agriculture's vitality is very important to rural Alberta in assuring stability to most rural communities. Production occurs at the family farm level thus providing a solid and reliable social foundation for the province which contributes to stability and hence overall investor confidence.

Agriculture accounts for a significant percentage of goods produced in Alberta. The total farm cash receipts in 1982 were $3.8 billion, while manufactured shipments of the food and beverage industries totalled $3.5 billion. In export terms, primary agricultural products represented 17% of Alberta exports in 1982, amounting to $2 billion in trade for Alberta and Canada. Alberta's major agricultural sales in 1983 were to the U.S.S.R. with $366 million of wheat and $260 million of barley. Exports to Japan and China were also large with sales of grain, oilseeds and other agricultural products nearing $290 million to Japan and exceeding $235 million in exports to China. Alberta's grain producers must remain export conscious and strengthen their efforts towards sustaining, diversifying and expanding world grain and oilseed markets. Quality in production and reliability in delivery are important objectives. Productivity improvements and further investment in transportation systems are required to sustain and strengthen competitiveness for Alberta's agricultural products.

Many specific policies of Alberta over the past decade recognized the critical importance of the agricultural industry to our economy. The problems faced by agriculture, such as those generated by the geographical location of the province within Canada, including

transportation inequities; natural forces such as weather and growing season; and the small population base for domestic markets, have all shaped budget expenditures of the province over the decade.

Recent federal legislation to eliminate the statutory or "crow rate" to transport grain to market remains the subject of ongoing controversy and requires resolution. It is maintained by Alberta that the present method of payment to the railroads will create disincentive for value added processing particularly in the livestock sector which will constrain diversification. It is also maintained by Alberta that the "cap" of 31.5 million metric tonnes of grain above which freight rates payable by the producers accelerate, is inconsistent with the objectives of the legislation. A further concern is that if the railroads spend less than their current commitment to upgrade the facilities, then the new rates should be reduced proportionately. Clearly, future freight rate adjustments should be more sensitive to net farm income levels.

The province has pursued initiatives to remove grain transportation blockages, including the development and funding of a new grain terminal at Prince Rupert, B.C., the supply of hopper grain cars by the Heritage Savings Trust Fund, and the acquisition of an inland elevator system to increase the efficiencies in the terminal shipments and handling of grain.

Alberta's investment in agriculture research has provided significant solutions to a broad range of problems affecting agriculture in our province. New strains of crops with new resistances or greater production potential have resulted. An excellent example is the development of canola oil with lower erucic acid content thereby paving the way for its approval by the United States Food and Drug Administration. Contemporary technology has resulted in improved processes of planting, cultivation and harvesting through better techniques, equipment, pesticides and fertilizers. In the livestock sector – adoption of new technology ie. genetic engineering and feeding technology – has placed Alberta industry at the forefront in the world.

Judging by the specific programs, assistance and positions taken by the government, the Alberta agriculture strategy has been focused on several objectives:

a) To stabilize and improve net farm and agribusiness incomes to the extent possible;

b) to increase the productivity of primary producers;

c) to sustain and expand markets both export and domestic;

d) to encourage reasonable Canadian domestic consumer prices;

e) to improve and upgrade the transportation system with freight rates competitive in the world market;

f) to process more of our products here rather than merely ship unprocessed raw products.

These policy objectives have been achieved, in part, through a variety of policy initiatives. Although some programs which targeted specific assistance or subsidies to the agricultural sector have been criticized as arbitrary or ad hoc, there have been clear goals which have shaped such program decisions.

Future research should continue to focus on the applied needs of the agricultural industries. As the newer technologies of genetic engineering (bio-technology) and computer based systems mature, they are being incorporated into research programs. Specific priorities related to maintaining and expanding soil and water conservation resources, to crop and livestock production and to agricultural processing are recognized. The establishment of the Food Processing Development Centre at Leduc is an example and will assist the private sector to expand its processing opportunities for Alberta.

As well, the massive investments through the Alberta Heritage Savings Trust Fund for irrigation upgrading and rehabilitation have dramatically improved the management of scarce water resources in Southern Alberta. Soil and water conservation practices have been assisted with these improvements in the irrigation system.

Alberta has developed as a major producer of agricultural fertilizers with world scale plants. We must ensure availability to our producers and complement this with expanded exports of upgraded fertilizer, particularly the nitrogen based ones, to facilitate constrained input costs.

Alberta's agricultural future is dependent upon maintaining existing agri-food markets and upon the aggressive pursuit of new market opportunities. World competition for agricultural markets will continue to be vigorous and Alberta must use all the forces available to it to maintain current markets and export levels.

A recent development in world trade mechanisms has been the impact of barter or counter-trade. It is estimated that 30% of international trade is currently negotiated in this manner – a high percentage of which is in agricultural products.

Protectionist policies, designed to prop up the agriculture sectors of most competitor nations, create downward pressure on market prices. Most industrial countries, through various support programs, buffer their farmers from the real economic world. The United States spent more than $14 billion in 1981-82 in assistance programs (current U.S. agriculture budget is estimated at over $21 billion), yet one of their most serious agricultural problems is surplus production. As a result, price competition on the international markets is severe.

Japan, one of Alberta's best export markets,has a program designed to unrealistically support the domestic supply prices of rice and beef far above the world market levels. The European Economic Community through its Common Agricultural Policy (CAP) budget of over $16 billion, supports its farmers with subsidies, tariff barriers or both to protect employment and to maintain farm income levels based on these subsidies. Thus Alberta has lost not only its grain market in Europe, but faces a subsidized new export competitor in the world market.

Alberta faces a major marketing challenge for its agricultural products and we must be ever alert to the movements and strategies pursued worldwide by other nations. Our success will be determined in the markets of the world, and we must be careful to ensure that the combination of agricultural policies which we pursue target these markets, with ever changing technologies and vigorous product competition based on quality and cost of production.

The livestock industry is key for Alberta. We produce over 25% of Canada's red meats and 40% of Canada's beef and veal supply. However, Quebec has a large subsidy program for its hog producers which has adversely affected Alberta's hog industry. Support or subsidy programs for livestock production by other provinces offset Alberta's natural advantage of grazing land and feed availability.

The large market for Alberta beef in Quebec is susceptible to political events. The potential for export sales of beef in processed form to the U.S. is constrained by many factors requiring attention. The meat packing industry in Alberta requires continued rationalization and competitive wages.

6. INTERNATIONAL TRADE – THE NEW CHALLENGE

Canada's and Alberta's prosperity and new job creation will depend to an increasing extent upon our effectiveness to become more sophisticated and effective as world traders. Most recent estimates show Alberta's major commodity export sales in order of dollar value as natural gas, crude oil and equivalent, wheat, petroleum products, coal, barley, sulphur,

petrochemical products, wood pulp, canola, fertilizer and livestock. Significant potential for additional sales of petrochemicals, processed meats, oil field and other equipment, together with service contracts for oil and gas technology, remain to be fully exploited.

The recent worldwide economic downturn created changes in the assumptions upon which national trade policies have been built. A re-examination of the world's competitive trade system has shown that the traditional model of how a country (province) can be successful in penetrating foreign markets, is now obsolete. The combination of these restrictive trade practices and the dynamic forces of technological change, have placed many countries and their industries in a non-competitive environment. Our objective, from an Alberta perspective, must be to ensure that the various sectors of our economy are competitive both domestically and internationally. In addition, our objective should be to assist our companies in exposure to market opportunities and where necessary, provide incentives for industry to take risks in export marketing.

It is essential that we develop new and pragmatic marketing strategies for each major exportable product and service, on a country by country basis, and for the United States on a region by region basis. As part of each element, an assessment of upgrading and processing potential must in each case be evaluated.

We must ensure that we are forward looking in our marketing and product development and that the major benefits of economic activity from provincial corporate entities flow back to Alberta to improve our levels of real income and improve the skills of our labor force. World trade will play an ever increasing role as the driving economic force in Canada, and competition will be fierce as developing countries compete for a larger share of the "world economic pie". Alberta is very susceptible to world trade development because of our dependency on the export of resources in raw material form.

Recent developments, which have challenged the world understanding on "free trade", may erode some of Canada's/Alberta's trading advantages. The current G.A.T.T. system was based on the premise of multilateral trade arrangements, to ensure all nations would be treated in a same manner. The price setting mechanism of the marketplace was to determine the flow of goods, conducted and organized by the private sector. Government intervention was viewed as distorting the free movement of goods and the market mechanism on pricing, and delaying the domestic adjustment to international changes in price, technology and quality.

Unfortunately, trade restrictions, import barriers, and other government interventions are now commonly applied by all industrialized nations. The result is the loss of economic efficiency which non-discriminatory trade would achieve.

Greater specialization and the development of a nation's comparative advantage seem to be forsaken goals. The United States, a world trading leader, has undertaken measures to retaliate against foreign trade barriers. The "free trade" ideal has been significantly eroded. Thus the domestic consumer must suffer by paying higher prices for protected goods. Innovation and new investment are discouraged as the status quo is rewarded. New jobs in new contemporary industries are being lost.

Canada, too, has been guilty of talking free trade and at the same time practising protectionism. This is illustrated by the Federal Government's quota systems for Japanese automobiles and for Chinese textiles. The Western Premiers at their recent meeting responded in their communique as follows:

"The Premiers agreed that:

- Canada must make international trade liberalization a priority. International trade barriers affecting Canada products, particularly agricultural and upgraded resource products, must be eliminated.

- Access to foreign markets for Canada's goods and services is vital to economic growth and prosperity. Canada must continue to resist protectionist measures, such as import quotas on automobiles and other non-tariff barriers. Trade is a two-way street, and Canada must be receptive to other countries' exports if it expects to export in turn."

These are the new problems facing world trade and form the backdrop to a world trading system in which Alberta must compete. The issue facing Alberta and Canada is basic. Do we assist or protect certain industries to ensure their survival, or do we rely on free trade principles and on natural competitive advantage? These are difficult choices for us, since governments elsewhere are targeting selective industries for a range of direct protection.

The solution cannot be fully reached except as part of a Canadian international marketing strategy. Alberta led with proposals at the 1983 Premiers' Conference:

"Among the specific points expressed by the Premiers in their exploration of trade issues were:

- removing unnecessary impediments to foreign investment;
- the need for more competitive world export financing arrangements;
- interprovincial collaboration in the formation of export consortia;
- the need for a determined effort to remove non-tariff barriers by our major trading partners;
- assisting the private sector to collaborate in international bids;
- collaborating on methods of increasing the export of services and provincial expertise;
- the sharing of information of marketing opportunities."

7. OTHER ELEMENTS OF THE ALBERTA ECONOMY

(a) PETROCHEMICALS

As noted at page 8, Alberta built from almost a standing start in 1971 what now consists of over half of the Canadian petrochemical industry.

By late 1983, this industry in Alberta had recovered from the downturn and had returned to anticipated levels of activity. However, throughout 1984, excess capacity internationally will continue to limit price increases although demand should improve markedly. Alberta's secure feedstock will continue to benefit Alberta's petrochemical producers.

Ethylene output and its derivatives are expected to increase substantially in 1984. The second major ethylene plant at Joffre will be coming on stream in the summer of 1984 and its full output is committed.

The 1984 fertilizer year is stronger and some if not all idled capacity should be restarted. The Alberta methanol industry is in a difficult situation. Worldwide over capacity still exists but demand is firming.

(b) FOREST PRODUCTS

Alberta's forest products industry is a well-established contributor to the economy of the province with great potential for significant growth. Based upon a plentiful forest resource of highly desirable commercial species, the industry ships over $800 million annually of quality softwood lumber and long-fibred bleached kraft pulp. The industry is also developing into a significant producer of hardwood panelboard products.

Over 7000 people are directly employed by the forestry and forest product industries which are generally located in the rural, more isolated areas of the province. These jobs are in the pulpmills, sawmills, plywood and panelboard plants and in the woods supplying the timber to the mills.

There is a very real potential for expanding the forest industry in Alberta. The sawmill industry recently surpassed over one billion board feet of lumber a year. The forest resources of the province have the potential for annual production to increase to two billion board feet. At the present time, the two kraft pulpmills have a capacity of 500,000 tonnes of high quality bleached kraft pulp. There is sufficient softwood fibre to more than double the kraft pulp production. Moreover if all the existing sawmills were equipped to produce woodchips, they could easily furnish the fibre for another two kraft pulpmills.

An exciting challenge and opportunity is the potential to increase the utilization of the hardwood resource. Only 6 per cent of the hardwood timber supply is being used today. A waferboard plant near Slave Lake will produce 140 million square feet of waferboard per year and the new oriented strand board plant at Edson will produce 230 million square feet of oriented strand board annually. The opportunities for increased use of the hardwood resource exist, not only in the production of panelboards, but also in pulp, lumber and specialty forest products.

(c) COAL

Alberta has eight major mines currently in production. Four of these are associated directly with mine mouth electric power generation plants and have been producing between 13 and 14 million tonnes/year of sub-bituminous coal.

The other four mines are operating in the Foothills and Mountain regions producing high quality bituminous coal for export mainly to Japan, Europe and Latin America. One further mine is being developed for start-up in 1984. Several others have been approved but are awaiting specific markets before proceeding.

Following the oil crisis of 1978/79, major expansion of coal utilization in the industrialized countries was projected by various organizations. While a significant increase in coal consumption has occurred, the impact of subsequent international events has reduced energy demand and resulted in a current worldwide surplus of both metallurgical and thermal coal supply and major downward price pressure.

The current challenge is to maintain, and where possible, improve sales in the current market situation through aggressive marketing, and to increase the competitiveness of Alberta coals by improving product quality and reducing the real cost of production and transportation.

(d) WATER RESOURCES

No review of Alberta's economic nature and foundations would be complete without reference to Alberta's valuable water resources. Together with British Columbia, Alberta shares one of the largest watersheds of untapped fresh water in North America. However, most of it is in less populated, northern Alberta. Current policy involves maximizing the potential use of water within the major basin in which it originates and in particular, harnessing the heavy spring run-off as accomplished, for example, by the Dickson Dam on the Red Deer River. The water management policy considers within-basin water transfer not inter-basin transfer. Export of water to the United States is contrary to policy to assure the long-term potential of Alberta's water resources resulting in plant and project location at source and hence avoiding shipping future jobs downstream. The Alberta Water Resources Commission as one of its mandates, is constantly assessing Alberta's water resources in terms of maximizing Alberta jobs. Current thinking is that water will become a major resource factor, post-1990.

(e) ELECTRIC POWER PROSPECTS

The Energy Resources Conservation Board has recently declared that Alberta has adequate electric power generation capacity, with the completion of Keephills and the rescheduling of Sheerness and Genesee, to meet forecasted needs for some years. Alberta must constantly be alert to comparative electric power costs in other parts of Canada. The devel-

opment of the province's substantial hydro-electric potential should continue to be examined in cooperation with the province's two investor-owned utility companies.

(f) TOURISM

Tourism is an important sector of the Alberta economy. The recognition that significant economic benefits flow from attracting tourists to our province has led to the development of a major industry in Alberta. A very significant level of cooperation exists among governments and the private sector. For their part, governments, have invested in and developed many unique tourist attractions and facilities. The Provincial Government has invested in world class parks, facilities, and events which attract international attention and recognition. Alberta's natural scenic resources, with a worldwide reputation, are thus complemented and enhanced. The development of Kananaskis Country, along with the successful stagings of the Commonwealth Games and the World Student Games, has put Alberta on the world tourist map. The upcoming 1988 Winter Olympic Games will provide a major boost to Alberta's tourist industry.

In 1983 the Alberta tourist industry generated nearly $2 billion in revenues and provided approximately 80,000 man-years of employment. It is estimated that of these revenues, over half came from out of province visitors. While Alberta's main source of visitors is from within Canada, the United States, Europe and Japan are also important tourist markets with strong growth potential.

(g) FINANCE

The growth of financial institutions over the past decade was very dynamic in Alberta. However, the economic downturn affected the operations of most of these financial institutions, largely due to the increasing incidence of non-performing loans as a proportion of total loans outstanding.

Alberta's locally based chartered banks continue to suffer, to some degree, from recent loan losses. This has resulted largely from an over-concentration of investments in real estate and energy in western Canada.

The Alberta Treasury Branch network had a slower rate of growth deposits in loans in 1983, and expects only modest growth in 1984. Deposits are expected to grow by 10 per cent and loans will increase by about 8 per cent.

Credit unions, trust companies and mortgage companies have together shared similar problems of high deficits and loan losses due to a large number of real estate loans on properties that have recently been foreclosed.

The Alberta Stock Exchange founded fifty-five years ago, provides an opportunity to small and medium-sized public corporations to market their stock to private investors. As well, the Exchange provides a secondary market to facilitate the private sale and purchase of corporate shares.

The Exchange, which grew rapidly in the late 1970's on the strength of the booming oil and gas industry, fell dramatically in the last half of 1981, but by 1982 had recovered some of its earlier momentum. The market improved by 1983, passing 1982 levels of activity. Activity is expected to increase modestly in 1984 as the petroleum industry begins its recovery. The trend will continue to 1985, but gains will not likely match the performance levels of the 1970's.

(h) SUMMARY

This segment of the White Paper indicates the breadth of industrial activity in the province and the need to co-ordinate and integrate strategies, policies and programs with current circumstances.

Section IV

Objectives and Strategies of the Past Decade

SECTION IV – OBJECTIVES AND STRATEGIES OF THE PAST DECADE

A. THE EVOLUTION OF THE CURRENT INDUSTRIAL STRATEGY

By the end of the sixties many Albertans were realizing that there was a need to develop our own "made in Alberta" economic policies which would benefit Albertans and which would recognize the differing and sometimes conflicting economic priorities of the central Canadian region. Much of Alberta's new investment up to 1971, with the exception of the GCOS Oil Sands Plant, had been by the oil and gas sector through drilling and primary recovery processes.

The previous Social Credit administration had developed an effective leasor/leasee system for oil and gas development but with major weaknesses in royalty provisions and pricing control. The highly regarded Energy Resources Conservation Board had built a sound foundation for conservation practices. The former administration's agriculture focus was on production not marketing or transportation. There was nominal economic diversification in 1971 and Alberta's role in national decision-making was limited.

The need for a specific "New Directions for the Seventies" was apparent – including an understood and flexible industrial strategy.

The general intention of Alberta's Industrial Strategy was to develop strategies based on resource development, both renewable and non-renewable, and to complement these policies with a range of broadly based programs to foster private sector expansion in Alberta. At the same time, the early statements on industrial strategy placed a significant priority on the need for technology and a well prepared and educated labor force.

The broad philosophical underpinnings and objectives of the Alberta Progressive Conservative Government were first outlined as economic strategies developed as part of the 1971 election campaign.

The specifics of Alberta's Industrial Strategy were presented to Albertans in a detailed speech by Premier Lougheed in Calgary at the Calgary Chamber of Commerce on September 6, 1974 and reaffirmed in the Legislature on October 23, 1974 (**see Appendix A**). Based on this policy outline, together with several other statements by the Premier and Provincial Ministers, Alberta has developed an industrial strategy much further than any other Canadian province.

Five significant goals formed the outline of the strategy, which has been followed fairly closely over the past decade. These guideposts are well understood by the private sector investors, the citizens of Alberta and by the other public sector institutions. These objectives have been:

1. **Economic Diversification:** It has been the Government's intention to diversify the provincial economy so as to become **less** dependent on the sale of unprocessed resources, both renewable and non-renewable. However, it was always intended and often stated that the oil and gas sector would remain a primary engine of the Alberta economy. Diversification was intended to **broaden** our base – not artificially **change** our base. Some misunderstood this intention.
2. **Balanced Economic Growth:** There must be a reasonable opportunity for economic growth and prosperity to take place in various parts of the province. This would capitalize on the potential which exists in many smaller communities and hence ensure a better quality of life in most centres.

3. **A Strong Private Sector**: There must be a supportive government environment in Alberta, which would strengthen private enterprise in Alberta by assisting small and locally controlled businesses within the province. Small business has and always will be the cornerstone of Alberta economic activity.
4. **Skilled Work Force**: There is a continuing need to upgrade the skills of our citizens to create higher productivity, and more job satisfaction that follows from higher skill levels.
5. **Competitive Advantage**: It is necessary to exploit the natural advantages which are available to Alberta, including: Alberta as a gateway to the north; the recreational and tourist potential of our province; the substantial agricultural base; and the abundant petrochemical feedstock.

These five basic objectives served as a broad outline of Alberta's Industrial Strategy. To complement these goals, fourteen additional policy points rounded out the framework of the Province's Industrial Strategy. Since this first policy statement by Premier Lougheed, the Province has implemented a series of programs and initiatives to support the strategy.

During the period from 1974 to 1982, the province experienced a very rapid growth in the Gross Provincial Product, as a result of oil and gas revenues, in particular. Thus, a clear industrial strategy has been very important in guiding the economic development within the province over that period. Many significant measures of progress can be catalogued to illustrate that the basic goals of the government have been achieved to a reasonable degree. A chronology of key economic events and developments since 1971 is included in the attached **Appendix B.**

During most of the seventies the dollar value and job activity of the oil and gas industry expanded remarkably which **disguised** by comparative data the solid progress being made in economic diversification. Another factor was that many entrepreneurs in Alberta who could have further contributed to diversification committed most of their cash and efforts to expansion in the energy and real estate fields.

From the perspective of the key sectors of the Alberta economy, clear statements were made as to the government's long-run intentions and as to specific policies or programs which were to be effected. In the case of the resource industry, two statements regarding non-renewable resources were relevant. Fair market value for the sale of natural resources must be received by the Crown, and additional value must be added to the resource by processing or upgrading within Alberta wherever possible.

One of the most dramatic actions by the Progressive Conservative Government was taken early in the seventies. Up to then the wellhead price for the oil owned by Albertans had been set by certain integrated petroleum companies. In 1973, the Alberta Government established the Alberta Petroleum Marketing Agency and oil prices at the wellhead have been set since through this agency of the people of Alberta who own approximately 85% of the Alberta oil production.

Next the objective of developing an Alberta based petrochemical industry was outlined to help diversify Alberta's economic base and to develop steady markets for our abundant natural gas.

Historically, the driving economic force in Western Canada and Alberta has been the export of raw, unprocessed agricultural products. The priority for this sector has been that every opportunity to process our agricultural products here in Alberta prior to shipment must be pursued. A key element in the agricultural industry was the needed expansion in transportation infrastructure and the re-examination of freight rates and rail capacities in the West. Because of population factors, the so called "user pay" system does not work for the West. The 1973 Western Economic Opportunities Conference provided a vehicle for Alberta to articulate its transportation strategy. Government leadership and initiative have been and

continue to be necessary to counter-balance a long list of transportation inequities which have plagued the agricultural industry in western Canada. Major investments of public funds in transportation infrastructure have been and must continue to be a priority, including ports, roads, terminals and airports.

As noted in Section III another significant sector of the Alberta economy is tourism, which is primarily small business driven and relatively labor intensive. The tourist potential has and must continue to be developed and encouraged with major government investment in facilities required to ensure accessibility to Alberta attractions, such as our only major mountain recreation area (i.e. Kananaskis Country) as well as historical and cultural sites.

Private sector investment is integral to any economic strategy, and must be fostered and encouraged. An economic climate attractive to outside investors must be maintained. At the same time, taxation policies which encourage and stimulate local small businesses must be sustained. Alberta's current tax regime is very advantageous to investors in all sectors of the economy and is designed to shelter an individual's disposable income and to maintain investment levels by the private sector, through no sales tax and low provincial corporate taxes.

Other elements of the **fourteen points** forming this economic policy framework included the encouragement of research by both private and public groups; the decentralization of government operations to various centres as far as practical; and the maintenance of provincial environmental standards which are understood, consistent and fair.

While the points outlined above have been the key elements of the province's current industrial strategy, other policy instruments at the disposal of the government are also very significant to an understanding of the overall policy evolution since 1971.

In the early 1970's the issue of the degree of government participation in the economy was of concern to the Provincial Government. The Province adopted the policy of establishing public corporations with a blend of private and government ownership. The creation of these entities were strategic moves by the province to develop the oil and gas sector, combining the equity participation of Alberta citizens and the Government of Alberta. In the explanation of the operation and policy formulation of these mixed enterprise corporations, the government indicated that these entities would be free of government direction and would not be considered as Crown Corporations. However, there is no question that these entities were part of an industrial strategy for the province, aimed at developing further our non-renewable resources, and in the longer term, developing a diversified industrial base within Alberta.

The government's private sector "partnerships" through such important Alberta based corporations as the Alberta Gas Trunk Line Ltd., and Alberta Energy Company, must be noted. These two corporations were initiated with exclusive development opportunities. In the case of Alberta Gas Trunk Line Ltd., now called Nova, it had a complete monopoly on gas transmissions within the province, and subsequently an expanded industrial development role in diversifying the Alberta economy. Alberta Energy Company, now partially owned by the government, has a significant stake in Syncrude; major oil and gas fields such as Suffield and Primrose which were reserved to the company; and investments in the forestry industry. Pacific Western Airlines, acquired as a regional carrier to protect the province's "northern gateway" business, expanded to become Canada's third largest national carrier. The Alberta Government's participation in PWA has recently been reduced to a nominal amount. The province's ownership of this company ensured that certain provincial transportation objectives were met, and that the corporate head office location and overall board policy were Alberta in context.

As well, a very aggressive Alberta based business sector has developed with the province's growth. These businesses, including professional and service corporations, are becoming significant national forces in their own areas of economic activity. Many of these

entities have grown to become international corporations, but their focus remains Albertan. The more business decisions made right here in Alberta the better for the province. The positive impact of both Shell Canada and Canadian Pacific Enterprises in moving their head offices to Alberta reflects the validity of this conclusion.

B. INFRASTRUCTURE – A NECESSARY ELEMENT FOR GROWTH

To ensure balanced economic growth within Alberta, the government has implemented several special programs and policies designed to equalize the opportunity in various parts of the province.

Development in the non metropolitan centres has been assisted through special grants or incentives which are designed to cover much of the heavy burden of the investment in public services by the Province. Thus such services as sewer and water systems, streets and arterial road systems, airport facilities and provincial offices and particularly small hospitals were provided by the province to assist the expansion of facilities needed to accommodate population growth generated by the expanded private sector investment.

In a similar manner, the government established two agencies, Alberta Housing Corporation and Alberta Home Mortgage Corporation, to implement and carry out provincial housing policies. During the seventies, the in-migration caused by the massive investment in the oil and gas sector and in related industries placed heavy pressure on the construction industry. Municipalities and the Provincial Government were required to supply basic services in response to a dramatic increase in demand for accommodation.

These two housing corporations have provided direct development assistance through residential and industrial land banking programs and direct financing of residential mortgages. The majority of these provincial funds came from the Alberta Heritage Savings Trust Fund, through direct loans to these agencies. Consequently, resource revenues which were saved in the Heritage Savings Trust Fund, were invested in housing and construction programs in all urban municipalities in the province, reducing the heavy pressure on local government to fund the housing requirements needed to cope with the abnormal level of economic activity. **Over the six years 1977 to 1982, Alberta's population growth, on average, was 30% of the total Canada population expansion.**

In 1981, for example, the province had 22% of all housing starts in Canada, compared to 8.5% in 1970. Thus, these housing initiatives were a key aspect of both a response to the need for government investment in public works and infrastructure, and the economic activity of the construction sector.

Obviously as the migration has now reversed as we adjust from an over-heated economy, it has become necessary for the Provincial Government to withdraw quickly from the housing field to allow the excess inventory to be absorbed. The 1984 Budget reflects this substantial withdrawal.

As a result of these activities, a positive factor since 1971 has been the development of a vast infrastructure in both metropolitan and other centres of transportation, utilities, communication, training facilities, health care and other essential services capable of servicing a developing and maturing provincial economy (see Page 9). This is an important positive factor for an investor comparing Alberta with other locations.

C. FINANCIAL ASSISTANCE FOR NEW AND EXPANDING ENTERPRISES

As noted on Page 30, one of the major elements of the existing industrial strategy has been to assist small and locally controlled business in Alberta.

The Alberta Opportunity Company was formed by the province in 1972, and since then has played a significant role in assisting small businesses in Alberta. The majority of the $181,000,000 now invested in various private sector entities is assisting small businesses outside the metropolitan cities.

The Agricultural Development Corporation has played a similar role with respect to farm business and agri-business since its inception in 1972. The Corporation has made direct loans of $829 million to farm business and $31 million to agri-business. An even greater amount of farm credit has been guaranteed by the Corporation.

The government's current strategy, avoids direct grants to corporations which would influence investment decisions and location analysis. This restraint has been a troublesome issue for Alberta for some time, since other provinces do provide grants to the private sector to assist targeted or particular industries. Competitive bidding to locate various attractive industries among other provinces is common. The reasoning is that the future spin-offs from the investment on the initial plant and in the long-term operating expenditures of the company, most often far exceed the present value of the public expenditure or direct assistance to the industry.

There are a few exceptions to the "no grant" policy. The Federal/Provincial Department of Regional Economic Expansion agreement targeted construction grants to the food processing industry in Alberta. This program was funded on a fifty-fifty basis by both orders of government and by most measurements, was a very successful joint development agreement. The Nutritive Processing Agreement, administered in Alberta by the Department of Agriculture, is in accord with the Province's goals for economic diversification and upgrading of agricultural products, and is the one instance of direct provincial grants to a selective industry.

Recently the Provincial Government has moved in a substantial way to attempt to encourage needed venture capital in the province. The difficulty with traditional debt financing for business is that interest payments tend to choke the enterprise during start-up and the business faces cycles with reduced cash flow. A balance of equity and debt is necessary but Alberta's private sector has not accumulated and retained sufficient pools of local private equity capital.

Last year the Province established Vencap Equities as a new arms-length venture capital entity. This year the Tourism and Small Business Department has brought forth a new program, the Small Business Equity Corporations Program to encourage the provision of private sector equity capital for small business. It helps business convert from a debt to equity basis.

More needs to be done to overcome demand loan dependency in a cyclical commodity producing region where the private sector becomes too dependent on bank loans for financing.

D. GOVERNMENT PROCUREMENT POLICIES

To afford the maximum economic benefit to Albertans from resource development, the Province has an industrial development policy administered by the Department of Economic Development. Before an industrial permit is granted for significant capital intensive projects within Alberta, there is an extensive investigation of the project to ensure that maximum benefit accrues to Alberta based entities. In the case of non-renewable, resource related developments, where Constitutional jurisdiction is with the provinces, considerable control can be exercised over both domestic and foreign-owned firms to comply with the Alberta policies on local content.

Some provinces have adopted public sector purchasing preferences which favor provincial suppliers. Some other provinces assist local firms tendering on public projects by providing a 10% preference to local firms (ie. British Columbia) or by protecting bids or pursuing various restrictive tendering practices. Alberta, while carefully monitoring and reviewing purchases for significant private and public projects, does not have a provincial preference policy.

It is Alberta's position that a provincial government procurement policy which offends the lowest-cost bid approach is an impediment to interprovincial trade. It tends to isolate a province from an effective market driven system, and generates retaliatory measures in other jurisdictions.

During periods of rapid economic growth, this open door policy has been generally supported by Albertans. However, during periods of economic contraction, the private sector tends to naturally request more protection from competitors based in other provinces. With procurement policies so common across Canada, Alberta's current hands off position must be reassessed.

E. RESEARCH AND DEVELOPMENT

Alberta has made major strides in research and development since 1971.

1. PROGRESS REPORT

Research development and commercialization of forefront technology has experienced rapid growth and is the focus of increased interest both in the private and public sectors in Alberta. Within the last few months announcements have been made concerning the establishment in Alberta of an Electronic Product Test Centre and a new National Research Council Institute for Cold Regions Research.

These two facilities will complement an increasingly impressive list of new technology facilities in the province. These include:

- Alberta Micro-electronics Centre (assistance to industry in all phases of micro-electronic product development and marketing);
- Centre for Frontier Engineering Research (involved in the research and evaluation of materials and fabrication processes primarily related to steel structures for use in cold climates);
- Alberta Environmental Centre
- Coal Mining Research Centre
- Food Processing Development Centre

These facilities, in combination with the Alberta Research Council, Alberta Oil Sands Technology and Research Authority and the Alberta Heritage Foundation for Medical Research provide a significant technological infrastructure within the province. This will help further development of private firms such as Bell Northern Research, Global Thermoelectric Power System Ltd., General Systems Research and Novatel to establish and carry out commercial research development activities within Alberta.

As well, Vencap Equities, Alta-Can Telecommunications Inc. (a wholly owned venture capital subsidiary of Alberta Government Telephones), the Product Development Program, and the Alberta Research Council's "Use Our Brains" Joint Venture Program with industry are all intended to further encourage the development of high technology industries in Alberta.

The government continues to work very closely with the private sector to priorize "building blocks" that may be required to advance this sector.

Conceptual activity continues in microchip design and fabrication, supercomputer logistics and the implementation of a micro-electronic information centre.

2. THE ALBERTA RESEARCH COUNCIL

Within the Province of Alberta, research has always been a high priority for provincial funding. Since the formation of the Alberta Research Council in 1921, to the establishment of the Alberta Heritage Foundation for Medical Research in 1979, the province has led all provinces in Canada in its commitment to research in general and the development of new technologies. The original mandate for the Alberta Research Council, the first provincial research organization in Canada, was to determine more accurately the mineral resources of the province and to investigate possible methods to advance the development of these resources. This far sighted decision to form such a research organization, even before the jurisdiction over natural resources was transferred to Alberta, has advanced the technology of mineral (oil and gas) extraction applied and used within the province. The present extraction technology used in the two existing synthetic oil production plants was developed on work and discoveries funded through the Alberta Research Council.

The Alberta Research Council established a new long range plan in 1979 which focused more definitely on its priorities and mandate. As part of the current discussion on Science Policy, such priorities and mandate are being reassessed.

3. FUNDING FOR RESEARCH IN ALBERTA

On a per capita basis, the governme[illegible] continues to fund research and development at approximately three times the level of any other provincial government, and in total, spends only slightly less than Ontario. In 1981/82 in aggregate, the research and development expenditures by 11 sectors and agencies in Alberta was over $500 million and represented about 12% of all Canadian research expenditures. This is over 1% of the Gross Provincial Product in 1981/82, and these expenditures have been increasing annually. The main sources of funding for these activities were: Industry 44%, the Provincial Government 18%, the Federal Government 15%, Universities 15%, and others, including the Alberta Heritage Foundation for Medical Research 8%.

4. THE ROLE OF THE UNIVERSITIES AND COLLEGES

Crucial to any sophisticated industrial strategy, is the development of a university and college system to ensure the availability of well trained, scientific, technical and managerial personnel. Ever higher skill levels are required to be competitive in the new job opportunities which are emerging in the world marketplace. As higher value added production is developed in Alberta, such higher skill levels are further required. In addition,the private sector gives considerable weight in plant location decisions to the proximity of world class universities. The research environment fostered by good universities and colleges is particularly important for firms relying heavily upon research and development for expansion and growth. The availability of skills within a region is an important criterion in forming location and investment decisions.

Alberta has given substantial support to university and college research facilities and programs. The research role of universities is critical to the advancement of any economy. Consideration of more specific priority directed funding by government to the universities is under discussion.

5. AGRICULTURAL RESEARCH

Alberta's agricultural industry depends on a continuing availability of new technology for its viability and growth. In 1977, the Alberta Heritage Savings Trust Fund created the

Farming for the Future Program. In its first five year mandate, this research granting program supporting universities, public agencies and the private sector, has expended $25 million in ensuring that existing research, manpower and facilities were fully utilized.

"Farming for the Future" has ensured a growing supply of new technology to support agricultural production and further processing. In particular, the government has supported upgrading of research facilities across the province and development of new capabilities in food processing, field crop development, and animal and crop pest management.

6. THE OIL SANDS – A PRIORITY FOR TECHNOLOGICAL BREAKTHROUGH

A further technological breakthrough to render the deep or in-situ Alberta oil sands more economic, would be of immense benefit to Alberta. In addition, new methods to improve the economics of oil sands surface mining projects; new approaches to exploit the various heavy oil deposits; and new techniques to recover oil from currently producing fields will all be of major benefit to Albertans. This vast potential was the basis for the development in 1974 of the Alberta Oil Sands Technology and Research Authority. The evolution of this agency, particularly with its growing joint venture projects with the private sector, has exceeded expectations.

Alberta is also fortunate in having very large deposits of heavy oil particularly in the northeastern region of the province. This heavy oil is used primarily as asphalt for road construction. New technology is available now to upgrade this heavy oil into a high quality synthetic oil usable for gasoline and similar purposes. Thus the June 6, 1984 announcement of the Husky Oil Upgrader Project is a major step forward in development of Alberta's oil reserves.

7. COAL RESEARCH

The Office of Coal Research and Technology will focus on developing new or improved commercial technologies which will, during the remainder of this century:

(a) enhance the competitiveness of Alberta's coals in international markets;

(b) minimize the environmental impact of the production or utilization of coal in Alberta;

(c) result in new uses of Alberta coals.

8. ALBERTA HERITAGE FOUNDATION FOR MEDICAL RESEARCH

In 1979, the Alberta Legislature created the Alberta Heritage Foundation for Medical Research. An endowment fund of Three Hundred Million Dollars was established from the Alberta Heritage Savings Trust Fund. The objective is to build a balanced program of medical research by supporting basic and clinical scientists, including both well established people and young people beginning new research careers. The Third Annual Report indicates that the Foundation has evolved successfully and is a major factor in building a new scientific community within the province. As the report stated it was a "bold move" – "it was an investment in knowledge and brain power. Alberta would keep her best scientific minds at home and attract more of the world's finest."

Section V

Options and Choices

SECTION V – OPTIONS AND CHOICES

A. INDUSTRIAL STRATEGY – THE ROLE OF THE PROVINCIAL GOVERNMENT?

The term industrial strategy is used rather freely throughout this paper. Some attempt of definition may be useful. Industrial strategy, as used in this paper, is the sum of a government's efforts to try to stimulate business activity and to influence economic growth. The need to facilitate the domestic competitiveness of local industries or sectors has been compounded by the complexities of technological change, and rapid changes in international trade practices. Assistance throughout the world commonly takes the form of tax incentives or direct subsidies, or the implementation of trade barriers. The intention of industrial policy and strategy is usually to correct a nation's declining international competitiveness in a world market and to encourage specified patterns of investment in the national economy.

It is argued that governments should resist involvement in the marketplace, since a misallocation of resources results. Nonetheless, governments everywhere are in fact involved in varying degrees. These interventions result in public assistance benefiting one sector over another, and have become fairly common among governments. Interventions by government are considered for the purpose of this Paper to be of two broad types. First, positive interventions are those which are in support of the private sector and which improve, in part, the risk evaluation of a capital investment decision. In this sense, intervention by government expands economic activity and growth. Examples would include public expenditures on infrastructure, which tend to benefit both the public and the private sector; the development of a skilled work force through the provision of facilities for training and education; the funding of research and development; and income tax incentives to encourage new investment.

Second, are interventions by governments where there is little economic benefit or new job creation but merely redistribution of assets. Federally, we have seen some of these negative intrusions into the economy or private sector in the form of direct corporate takeovers by government, buy-in provisions and direct burdensome regulation. Some of these kinds of interventions are clearly associated with the National Energy Program.

Thus the extent of an industrial strategy depends on the way in which the government assists or cooperates with the private sector to accomplish overall economic objectives and growth.

In Alberta, we are much more fortunate than many jurisdictions, in that our base industries are not waning, but in fact are among the long-term growth sectors. We do not need to concern ourselves about the transition from "smoke stacks" to silicon chips. Our problems are more oriented to selecting strategies which will encourage some industries to locate here which will **complement** our existing strengths yet further diversify our economic base. The selection of these industries may be difficult and the initiatives needed to bring the development here imaginative. Yet the government should be involved in this strategic policy since financial or other assistance may be necessary. It is the responsibility of the government to set an environment so the private sector can make our economy more adaptable, dynamic and diversified.

B. THE KEY ISSUES

Section III of this White Paper set out an overview of the challenges facing Alberta as all sectors cope with new and dynamic world economic realities. Section IV outlined some of Alberta's basic objectives and strategies of the past decade, in response to both the national and international environments we have faced here in Alberta. In this Section V, some of the issues, choices and policy options available to Albertans are considered. Essentially this document includes a reappraisal of past strategies, programs and initiatives; an assessment of major policy options; and an assessment of new opportunities which have evolved that provide potential for the decade ahead.

It is apparent that Alberta depends to a significant degree on the mix of a viable oil and gas sector as well as the export of food, energy and other products and services to destinations outside the province.

Product sales outside Alberta in 1982 accounted for about 50% of the Gross Provincial Product. Exports into the international markets accounted for approximately 22% of our Gross Provincial Product. The growth potential of exports is a major opportunity for us.

Because of our substantial dependence on the export of commodities such as grain, coal and sulphur and the need to expand our markets in the United States for natural gas and petrochemicals, Alberta could suffer heavy trading losses if discriminatory trade practices become a common occurrence. There are many world competitors offering similar primary products on more favourable terms of trade and reflecting transportation advantages which are difficult for Alberta suppliers to match. Substitution of commodities is possible and as the world competitive situation changes, Alberta is exposed to these vagaries of international trade.

The issues facing Alberta are nearly the same as for Canada as a whole. How does our economy strengthen and diversify in the future and still retain the basic strengths of our existing industries? Alberta has the foundations of a diversified economy in place, and several advanced technology companies now operate here. However, if for example, we wish to capitalize on the initial strengths of our petrochemical industry or our telecommunications industry, against a world pursuing the same objectives, it may be necessary to consider quite new strategies to build upon these specific sectors.

Our longer term objective must be to provide higher skill job opportunities to our citizens, particularly young Albertans, through new forms of job creation using new technology. Albertans should recognize that a significantly large proportion of our provincial work force is employed in service rather than primary industries – in construction and real estate rather than directly in oil sands plants or food processing concerns. We must further recognize that the more our raw materials are processed here, the more higher level skill jobs are created here for young Albertans. Thus we must minimize the risk of being essentially a primary resource producer. However, we must have the wisdom to realize our considerable limitations in avoiding the fluctuations of world commodity markets. Finally we must build on our strengths and attempt to minimize the risks arising from our weaknesses.

If we are to continue our efforts to broaden our economic base in Alberta, we need to consider very carefully what new initiatives may be necessary as part of an expanded Alberta industrial strategy. Do we wish to be in the forefront in certain high tech industries and are we willing to encourage the private sector to invest in these businesses in Alberta? What form of encouragement do we use to obtain that end? What are the trade-offs for economic expansion, if in fact some industries are selected for assistance? Have we done all we can to encourage and foster research in Alberta, and do we need to do more to exploit innovation and the development of new ideas, processes and products? These are some of the questions which must be considered, if we are to respond to the new world economic imperatives.

Concurrently we must accept the reality that our basic strength and largest advantage is our fortunate storehouse of resources and our skill in developing and producing these resources on a cost effective basis. Our confidence is strengthened by recognizing that our most valuable resources are required by people throughout the world. So the challenge is to sustain the viability of our primary industries and our producers both of food and energy.

Then we must examine how we link the skills of our primary producers to the new opportunities for technology, processing and innovation.

With the economy growing rapidly during the past decade, the government's role was to foster private sector activity and to play only a nominal part in focusing government assistance to specific industries. As the policies evolved, however, more programs and the assistance provided on behalf of the government became both sector specific and industry specific. Agriculture received fairly substantial direct assistance through such programs as the cow-calf assistance program. Substantial incentives were also provided to the oil and gas industry to help to counter-balance the negative effects of the federal National Energy Program.

It should be noted, as well, that a major diversification of the Alberta economy was accomplished without grants or industry specific assistance. The petrochemical industry developed in Alberta essentially as a result of "feedstock security" which exists here. Yet considerable effort was devoted by the government to ensure this diversification did take place. In this case, the government acted in consultation with the private sector to provide assistance and advice on such questions as location analysis, supply of basic services, and a skilled work force. However, no grants, subsidies or special considerations were provided to this industry.

An issue therefore is whether the circumstances have so changed, domestically and internationally, in this and other industries to the extent that the current strategy should be modified?

C. FEDERAL GOVERNMENT'S ATTEMPTS TO DEVELOP AN INDUSTRIAL POLICY

During the seventies there was little by way of clear or consistent industrial policies or strategies developed by the Federal Government. While it is true that wage and price controls in 1975 interrupted the operations of the market system, little emerged during this period by way of concrete federal economic policy. The only exception to this drift was the First Ministers' Conferences on the Economy in February and November 1978 whose communiques reflected the tentative signals of a possible coherent national industrial strategy. However, the political events of 1979 and 1980 swept aside this encouraging development.

Moreover, the re-election of the federal Liberal Government in 1980 led to several significant changes in the manner in which the Federal Government would conduct the economic affairs of Canada. The intention was to reassert the federal presence right across Canada; to attempt to bypass the provinces wherever possible and to centralize power in Ottawa. The Federal Government lacked the fiscal capacity to increase the visibility of its activities, thus additional intrusions resulted.

The disastrous National Energy Program was the extreme action taken by the Federal Government in its October 28, 1980 Budget. The NEP was as much a revenue policy as an energy policy. It signalled a much more centralist and intrusive approach to national economic issues and planning. As the Economic Council of Canada has recently concluded, the National Energy Program has been a very negative factor for economic stability for Canada.

Concurrently, the Federal Government in 1980 renewed its intentions to strengthen and reactivate the Foreign Investment Review Agency in order to change the levels of for-

eign investment in various Canadian industries. Foreign investors in Alberta and Canada were thus confronted by a burdensome regulatory process and thus discouraged from considering Canada for new investment proposals or acquisitions. Through most capital markets of the world, Canada between 1980 and 1983, was perceived as an undesirable place for investment for political reasons.

There has been a four year period of difficult tension and conflict between the ten provinces and the Federal Government. Lack of consultation and involvement left the provinces defending their jurisdiction or revenue base from unilateral initiatives by the Federal Government. Because of the historical economic union which exists in Canada, and the cumulative effects which all provincial governments' fiscal and economic policies have on the overall Canadian growth, **it is necessary to return to the spirit of cooperation and coordination of our Confederation.** Many mechanisms are currently in place which could ensure an improved national framework of intergovernmental relations. The Alberta Government's presentation to the Royal Commission on the Economic Union and Development Prospects for Canada (the MacDonald Commission) develops this thesis more fully (Alberta in Canada: Strength in Diversity, 1983). The Budget Address notes the following principles:

"1. – governments in Canada must renew their commitment to intergovernmental cooperation and consultation;

2. – Canada's economic potential lies in recognizing and building upon the strengths of all its provinces and regions; and

3. – governments have an important role to play in creating a positive climate for private sector initiative."

Canada will not only fail to reach its potential, but high unemployment will persist if the nation does not soon evolve a consensus as to its industrial strategies. This is not possible in a federal system without a consensus involving the Federal Government and most of the provinces representing all regions. The next Federal Government does not have the option of renewing cooperative federalism – it is a necessity.

For Alberta, our industrial strategy will be less successful if we dilute our energies by consistently being required to protect our jurisdiction and circumvent conflicting Federal Government programs and policies.

D. POLICY OPTIONS FACING THE PROVINCIAL GOVERNMENT

In developing an Industrial and Science Strategy for Albertans in light of events and developments since 1971 (See Section II) some fundamental policy options must first be considered by the Provincial Government.

1. Should the Provincial Government remain active and supportive of the Alberta economy or become more passive, and concentrate primarily on encouraging a good climate for private sector investment?

Since 1971, this has been an important philosophical debate in Alberta both within the Government Party itself, but also within the various business and industry sectors. Clearly the record has been that the Alberta Progressive Conservative Government has been significantly more active in the provincial economy than its predecessors, primarily during the early seventies. Examples abound such as Pacific Western Airlines, the Alberta Energy Company, Prince Rupert Terminal, Alberta Opportunity Company, Agricultural Development Corporation, and the Alberta Home Mortgage Corporation. These efforts were intended to support provincial economic activity and growth.

2. Should the Provincial Government in most cases decide in favor of job activity and deferred revenue growth rather than immediate revenue?

In a province such as Alberta where resource revenues provide over half of the total revenues (the other Canadian provinces average 3%), this is another difficult policy question. An example occurred when the Provincial Government agreed with Syncrude in 1982 that if the enterprise undertook a large upgrading, which was economically viable and job creating, the province would defer its royalty revenue. However, if the Provincial Government goes too far in this direction then general tax increases, both corporate and personal, could result.

3. Should the Provincial Government select specific sectors or areas for special support and encouragement or should it take a very standback attitude towards economic development?

At first this question appears to be similar to question no. 1, but it is not! It involves picking winners and losers! It involves for example, special tax measures and concessions for either one industry or one element of an industry over others because that industry or element is judged to provide greater potential for future jobs and growth.

4. Should the Provincial Government use tax incentives much more aggressively to encourage activity? Or should it use subsidies or grants? Or should it be passive?

The reflex reaction of most of the business community to this question is that subsidies are bad and tax incentives are good. Unfortunately, the issue is invariably complex because:

a) encouragement of certain new or immature areas of activity face such extended periods before taxes are payable that tax incentives offer little encouragement. This issue is particularly troublesome because much of this activity involves local ownership and potential for diversification.

b) instituting subsidies brings with it, for export products or services, the risk of retaliation by the governments of the importing market areas.

5. To what extent should the Provincial Government press universities and other educational entities to priorize job directed versus general education?

The recent Western Premiers' communique expressed the view that more should be done by provincial governments to press for more concrete job oriented education in order for young people to compete in the new economic environment expected for the balance of the century. Serious questions are these: who is so perceptive to know which skills will be actually needed in 1990 and what if we guess wrong? Another counter argument is that if a young person has a good general education, the employer can better teach the specific skills as part of on the job training programs.

6. What should be the parameters of the Provincial Government role in international marketing of our products and services?

For example, if Albertans can offer a package of services and equipment to a particular country where the purchaser is in essence the national government itself – should the Alberta Government be a part of an export consortium and submit the proposal in its name or should the Alberta Government merely act in a supporting role providing intelligence data and other market development assistance?

7. Should the Alberta Government abandon its current policy of providing no specific preference to local suppliers, contractors and others on tendered purchases or contracts? As noted many other provinces have such legislated, regulated or established preference providing their own suppliers and contractors with a built in advantage. Yet in Alberta the Alberta Government accepts invariably the lowest tender regardless of whether or not the firm is based in the province and employs Albertans or not.

These and other policy options show the complexity of developing an Industrial and Science Strategy for Albertans – 1985 to 1990.

E. POTENTIAL NEW OPPORTUNITIES FOR ALBERTANS

Alberta has a promising and challenging future. As the effects of the world economic downturn of 1981-82 abate, and real economic growth returns to many world economies, Alberta will be able to expand its natural competitive advantage within Canadian and international markets.

Alberta's energy horizon is nearly infinite and Alberta's natural resources of crude oil, oil sands, natural gas and coal will be a basic source of energy supply to Canada and to the United States for decades ahead. The importance of agriculture as a base Alberta industry is recognized in the strategic role which the security of food supply plays in most economies. This means that the basic forces which will continue to drive our future economic growth will be the energy and agricultural sectors.

The final section will suggest new or modified strategies to further strengthen and expand these two primary industries.

However, there are also a number of other sectors where new or different strategies may accelerate new career opportunities for Albertans, particularly young and skilled Albertans. In most cases further developments will take time, but a solid base has been established over the past decade and warrants renewed effort.

1. HIGH TECHNOLOGY AND RESEARCH

Interesting prospects exist in certain non primary resource areas. These areas are typically innovative and involve sophisticated technology, some of which has been discovered and developed here. All employ highly skilled workers, and all add value to basic commodities before export in manufactured form.

These areas include the design and fabrication of optical fibre cable; large scale integrated circuitry; complex polymer materials and products derived from biotechnology; telecommunications; computer aided manufacturing; computer aided learning systems; software development and marketing; and specialized steel processes, to name several. As well as being forefront enterprises, they also require substantial and continuous research expenditures to ensure further discoveries and innovation. It is possible that the success rate of enterprises in these fields will vary widely because of competitive factors. However, many observers believe that on a specialized basis Alberta has the potential for a fair share of winners.

With the importance attached to "high tech" enterprises in all countries, everyone is trying to start "Silicon Valley 1984". In the U.S. competition among the states for high tech industries is nearing a "war". To lure these enterprises to their region, politicians are eager to offer very attractive tax packages or other incentives and assistance to sway location decisions. Loss of jobs in their traditional manufacturing sectors has added fuel to the competitive fire.

Common among some states in the U.S.A. pursuing a high tech industrial base, is formation of campaign teams which directly contact those firms active in other regions to solicit the relocation or expansion of their plants. Along with tax incentives, several states, including New York and California provide special commercial loans to new firms. The proximity and quality of State universities is a very significant factor to ensure that research assistance can be provided to the business and that skilled people for high technology jobs are available. Usually, publicly funded research centres are based in industrial parks near universities, to complement further research orientation of these businesses.

The financial institutions which provide direct investment loans or equity to new high technology industries are an important part of a location decision. In Alberta, we are fortunate to have a fairly well developed banking presence. The regional banks, which are head

officed in Alberta, are aggressive players in securing new business from growth oriented, dynamic enterprises.

The key, though, often is adequate equity to allow the enterprise time to develop and mature. In these cases the equity is clearly within the ambit of what is commonly referred to as venture capital. Several private sector venture capital firms are now located in Alberta. As well, two Alberta Government sponsored venture capital entities were put in place in the past year. **Vencap Equities** was assisted by a $200 million investment from the Capital Projects Division of the Alberta Heritage Savings Trust Fund. The Company will operate independent of the government with policies set by its own Board of Directors. Additional working capital was raised by a share and debenture sale to Albertans, which was over-subscribed. Vencap Equities is intended for larger sized investments in most sectors except real estate with high tech and Alberta based growth companies a focus for equity purchases.

A newly formed small business venture capital program has just been completed (The Small Business Equity Corporations Act). The objective of this proposal will be to assist small business by encouraging direct investments by Albertans. The strategy of the Alberta Government is to muster private investment funds into a pool of resources for venture capital purposes. To encourage private investors to form themselves into small venture capital companies, either direct grants to the investor or special income tax credits are allowed for eligible investments.

Venture capital is now becoming more available in Alberta to entrepreneurs and this should be a strong incentive to a variety of new corporations to be formed or located here. As well, the assistance provided by the Alberta Opportunity Company, through higher risk loans, as previously described at Page 33, rounds out the types of provincial financial assistance in Alberta.

Others have described the high technology industry as unique since its main asset is knowledge, and these assets are held by creative, mobile and well educated people. These people are relatively free to move about, usually to environments which are supportive of research and where technology is an exciting part of the regional economy. The quality of life is important to these contributors whether it is the excitement of larger cities, the opportunity for recreational and outdoor activities or the personal tax regime they face. By all these criteria Alberta appears well prepared to challenge most other jurisdictions.

Universities play a significant role in attracting high tech investments and entrepreneurs. A strong liaison is important so that new research projects and new ideas can be exchanged among scientists and innovators and a common intellectual and social bond established. In all key "high tech" areas of North America, world scale universities are near these industrial centres. The maintenance of this liaison is reinforced even further if the universities themselves are interested in technology transfer. The University of Alberta Chemistry Department by way of example, has developed Chembiomed, a high tech industry with world markets. In this instance, the discovery was brought to commercial development through the joint assistance of the University and the Province. Significant as well, is the quality of graduates provided from such schools as Business Administration and Engineering. In both cases, Alberta has good graduates, well qualified for highly technical work responsibilities.

Alberta is well positioned to exploit the natural advantages which are ours to attract significant new **high tech industries to our province. The progress to date is described previously at Pages 34 to 36. The question is, which of these many industries should we encourage and on what basis?** We cannot possibly attract all elements of the high tech industry. It is important to complement the existing activities which are now underway and as well to exploit the research projects and objectives now funded in Alberta. As noted financial systems are being put in place with venture capital firms among the services avail-

able. Add to these elements the natural physical environment which is ours and we have a significant package to offer these "new wave" entrepreneurs. The province should take the initiative to further encourage the development of specialized high technology industries.

The Research and Science Advisory Committee to the Cabinet Committee on Research and Science has prepared a proposal for discussion entitled, **Science and Technology Development in Alberta Proposal, May 1984.** Highlights of the report are attached as Appendix C and form an integral part of this White Paper. A preliminary draft has already been circulated to the university and science communities in Alberta.

While governments do play a sizeable role in funding research and development expenditures worldwide, studies of successful innovation show that the research efforts of industries are more likely to become commercial prospects. What is needed in Alberta, to reinforce our commitment to diversification, is a series of policies which assist industries and universities in transferring their creativity to commercial projects. In part this is addressed in the Appendix C Proposal document.

The conclusions reached by this White Paper on science and technology are set forth on Page 66.

2. PETROCHEMICALS

The petrochemical industry is an integral part of Alberta's economic diversification, mostly achieved over the past seven years. As a significant contributor to our manufactured productivity, a major user of our abundant natural gas reserves and an employer of a substantial number of skilled workers, this industry is a key component of Alberta's economic base. Alberta has developed this world scale petrochemical industry on the basis of the "feedstock advantage" in Alberta, and without any special assistance. In 1984 Alberta will account for one half of current petrochemical capacity in Canada.

Petrochemicals in Alberta essentially use natural gas as the feedstock, and by upgrading this resource into semi-finished products, this adds increased value to Alberta's natural gas. The end products have a sustainable or longer useful life and may be re-used, as opposed to the one time immediate benefit derived from hydrocarbons in their basic form. Some Alberta products which are produced from the primary petrochemical product of ethylene include film and bags, anti-freeze, plastic pipe and moldings, adhesive and coatings. In addition, fertilizer and methanol are produced directly from natural gas.

At this stage in Alberta, the primary level of the petrochemical industry is well established, technically very contemporary, and able to compete in Canadian and American markets. However, it is important that we optimize the involvement in the manufacturing of end products in Alberta. This will add to the diversification of this industrial sector and provide integration of products from natural gas through to end products, maximizing the economic benefits for our province in sustained growth and higher skilled job requirements. The value added per employee in this industry is higher than any other manufacturing sector.

The world petrochemical industry is emerging from the 1982 downturn facing reduced world demand for primary and end products. Worldwide, ethylene capacity and demand are not expected to come into balance for some time.

Similarly, the naptha based Canadian industry, particularly in central Canada, is experiencing losses and seeking assistance to adjust the feedstock costs by removal of some taxes and by subsidies. The Alberta Government warned the Federal Government in May 1974, that the Petrosar Project would prove to be uneconomical.

On both a North American and world basis, petrochemical capacity based on naptha (ie. oil) is being rationalized as some plants are closing due to longer term economic difficulties. In Alberta, where the industry is based on natural gas feedstock, demand is firming. An

oversupply of ethane and ethylene on the U.S. Gulf Coast caused North American prices to soften temporarily. However, for Alberta, we have the potential to emerge from the 1980's as a major North American participant in petrochemicals because of our assured feedstock supply, and the basic private sector "state of the art" investment now in place. Markets and transportation costs are the key factors.

The years ahead appear relatively promising to Alberta for petrochemicals. The economics of a world scale natural gas based segment of the industry far out-distance those of the crude oil based industry over the longer term. Alberta must first ensure that the basic industry is maintained and supported over the short-term until the demand/capacity problems and natural gas pricing issues are resolved. Secondly, as part of our diversification strategy, we must ensure Alberta optimizes the manufacture of end products here, as opposed to exporting primary products to other jurisdictions. In the interim, however, markets in the U.S.A. must be strengthened for a major portion of the Alberta production.

It is appropriate to mention the positive response this industry has made to the province's diversification objective. From the outset of the development of this industry in Alberta, through the process of consultation with the government, the industry was encouraged to locate their major plants away from the large metropolitan centres. This "stepping out" policy for plant siting brought economic growth to such other Alberta communities as Red Deer and Medicine Hat. The industry would have preferred a closer grouping of plants for various cost reasons, yet agreed to the government's policies. The industrial diversification afforded Alberta from petrochemicals has thus played a major part in spreading economic opportunity across the province and the industry should accept the commendations it deserves for its cooperation.

The proposed new policies and strategies related to petrochemicals are set forth at Page 67.

3. AGRICULTURE PROCESSING

Previous sections (see Pages 19 to 21) have referred to the importance of Agriculture processing to Alberta, as it adds significant value to products upgraded here. Since agriculture processing involves a variety of crops and livestock which to some extent are regional in nature, secondary manufacturing plants have been completed throughout various parts of Alberta, providing balanced economic growth. Similar to other manufacturing industries, skilled manpower is required to staff production positions. Some agri-processing plants, such as meat processing, have a significant manpower component.

Since much of this industry is dependent on markets outside of Alberta, the private sector is in continuous competition with suppliers from all regions of Canada and the United States for market penetration. Input costs, such as wages, rigidity of work rules, and primary product costs, tend to place Alberta manufacturers at some disadvantage. The high cost of wages in Alberta relative to most other jurisdictions reduces our competitive opportunity. Although some agricultural processing plants secure supply of primary production by contracts with farmers, some other plants are exposed to the uncertainty of supply caused by weather variations, price fluctuations and marketing agencies. As referred to previously, serious transportation inequities still exist in the Canadian freight rate system, which disadvantage Alberta suppliers in reaching distant markets.

One segment of Alberta's food processing industry, the beef manufacturing industry, operates in a complex North American economy. In 1982, approximately 75% of the beef processed in Alberta was destined for out of the province, primarily to Quebec. Transportation costs are very important. The rail rates to eastern markets in fact, largely determine the Alberta wholesale cattle prices. Since 1970 rail costs for beef have increased 200% meaning that margins for feeders and processors in Alberta have been reduced because wholesale prices have not increased at all over the same period.

One of the problems is that Alberta processors are price takers in the large eastern consumer markets. Alberta processors in conjunction with the Provincial Government should examine ways to enter other markets, in particular the nearby United States regional markets. Since different transportation systems and modes are involved, a better rate structure for processed beef could be negotiated. The Pacific Rim also presents specialized market opportunities.

The brief example of the beef processing industry depicts some of the cost/transportation problems which the food processing industry in Alberta faces. There is still uncertainty as to what effects the revision of the Crow Rate (Bill C-155) will have on the Alberta food processing industry. Concern remains that transportation cost implications could cause significant cost changes to this segment of the industry.

However difficult the market problem and transportation inequities facing the agricultural processing industry, it is still significant to the province's diversification strategy. Successes can be measured and new cash crops and manufactured products have been established over recent years. More opportunities exist if the private sector continues its efforts in market directed research, the application of new technologies, and market development and expansion.

Currently, investments in new facilities or technology for food processing have been deferred until better returns on investment can be reasonably assured. This means there is presently a backlog of available technology for application to food processing. However new technology will be needed to advance the industry, and with federal funding being reduced, the Alberta Government's decision to establish the Food Processing Development Centre at Leduc appears to be a significant decision towards the long-term support of this industry.

It is worthy to note that the expansion of food processing facilities was substantially assisted in Alberta through the Nutritive Processing Agreement a federal-provincial program in cooperation with the Federal Department of Regional Economic Expansion. While DREE programs in general have provided little benefit to Alberta, this sub-agreement was effective in expanding the food processing industry particularly in the rural parts of the province. This example of direct assistance to a targeted industry has encouraged the private sector to invest in real capital formation and to further diversify the Alberta economy.

Alberta should also undertake a detailed assessment of food products presently imported into Alberta and even Western Canada that could be competitively grown, processed and packaged here to identify even more new opportunities.

Proposals for new strategy directions in agricultural processing are set forth at Page 61.

4. FINANCIAL INSTITUTIONS

As noted at page 25, financial institutions in Alberta experienced very dynamic and changing times over the past decade. From the rapid expansion in the seventies, to the recent downturn, this sector has moved from unprecedented growth to contractions. During the "boom" period, Alberta attracted a variety of new financial businesses – foreign-owned banks, new trust companies and new Alberta based banks. The Treasury Branches and other financial institutions in Alberta experienced major increases in deposits and assets.

Worldwide, Alberta was considered to be a financial "hot spot", with soaring economic growth and unmatched profits. New Alberta based Canadian banks carved out a special niche in providing loans mainly to entrepreneurs. In order to better participate in the Alberta action, several major banks decentralized their decision-making and loan authority to Alberta. Senior management were moved here and given authority to make deals and match the competition. The Alberta financial industry expanded rapidly as energy prices and real estate values rose.

Many observers (including the Provincial Government) became very concerned as both residential and commercial real estate values increased very rapidly despite record year after year building permits for offices, commercial buildings, apartments, condominiums and homes. The Province had significant initiatives to cushion Albertans from these price increases but by 1982, real estate values in metropolitan Alberta still exceeded the Canadian average by disturbing amounts and the expansion for many real estate concerns was financed by debt rather than equity.

Both the producing and service segments of the petroleum industry expanded rapidly, with most acquisitions and much of the expansion financed by demand loans rather than equity.

The National Energy Program, worldwide reassessment of energy demand forecast, high interest rates, and the inevitable "cooling" ended the rapid expansion of many organizations.

To help adjust through the period of excessively high interest rates, small businesses were assisted by the Alberta Government. The Treasury Branches introduced ceilings on rates for business loans. Direct interest subsidies through the Heritage Fund Small Business and Farmers Interest Shielding Program reduced interest costs to below market levels to help sustain the small business sector through the period. Even with this assistance, many small businesses so dependent on short-term borrowing arrangements, failed to survive. All banks had to take equity or ownership in assets as loan defaults occurred. The experience of this period caused a retrenchment of decision-making to a more centralized and controlled loans operation.

The major chartered banks are being encouraged to:

1. assess the Alberta economy in terms of its many strengths and unique potential;
2. work through the demand loan situation in a pragmatic manner reflecting Alberta's basic commodity resource economy.

Alberta's financial institutions are moving ahead with new plans for expansion. In the case of the Alberta based banks, new equity, cost reductions, and loan diversification will help them expand with the economy. As well, a new Alberta based bank has been formed, funded essentially from a stock issue within Alberta. These provincial and regional banks are very important to the longer term economic growth of Alberta. With head offices here, entrepreneurs can feel they are relating to senior decision-makers, who share similar backgrounds and information.

Concurrently, Alberta banks may need some provincial government support. Since they cannot generally depend upon individuals' savings accounts (normally available as a large source of deposits to larger banks) they must pursue competitive term deposits to finance parts of their loan operations. The provision of some deposits by the government is one source of support that could be expanded. Such "government deposits" indirectly improve the availability of funds for Alberta businesses seeking loans. These deposits are also seen as indicators of confidence by the province, which assists the bank in obtaining other term accounts thus expanding again the availability of capital for Albertans in business.

A similar indicator of confidence was demonstrated when the government recently acquired a small ownership interest in a new Alberta based bank.

Treasury Branches are unique to Alberta. They provide full banking services to Albertans, although such services are restricted to the province. These funds represent not government funds but savings of depositors. Rapid growth has been experienced by this government agency over the past five years. The Treasury Branches have assets of 3.4 billion dollars and more than 2.5 billion dollars in loans outstanding assisting Alberta small businesses and individuals. Mortgage loans for private residences are as flexible as any now offered in Alberta. The Treasury Branches are in a very strong overall financial position. A

growing role for the Treasury Branches is necessary so this Alberta financial institution can help generate creative solutions to meet the financial needs of Albertans.

While there may be some question as to the role of Treasury Branches in shielding particular sectors from interest rates which are determined elsewhere, there is clear merit in the objective of helping to blunt the worst effects of adverse monetary policies which are externally set. At the same time it should be a policy objective of Alberta to expand the strength and scale of operations of Treasury Branches as a vehicle of economic development within Alberta.

Alberta's trust companies and credit unions represent other important dimensions of the Alberta financial scene. They will respond and adjust to meet the changes and opportunities in the province in the years ahead.

The Alberta Stock Exchange (see Page 25) needs to find a niche and expand its activities with more companies listed for trading across the board. The government should use its influence to convince more public corporations to list in Alberta, especially those that conduct a significant portion of their business here. The Exchange should be supported in any effort to extend its operations into new areas such as over the counter markets and markets in unlisted securities, which will be stimulated by such initiatives as Small Business Equity Corporations (see Page 33).

The Alberta Securities Commission is established to protect the integrity of Alberta's securities markets. The Commission approved prospectuses of publicly listed companies, of which 347 were filed in 1983, a significant increase over 1982. There is a need, however, to review the regulatory processes, to lower the cost of prospectus filings, expand the provisions for exemptions from extensive documentation, and thus encourage more Alberta corporations to file stock offerings.

The presence of any indigenous life insurance company in Alberta is now in question even though Albertans are substantial investors in life insurance coverage. The estimated life premiums paid out of the province by Albertans in 1982 approximated $700 million. Substantial accumulations of funds are presently received by insurance companies with headquarters elsewhere. An Alberta based life insurance industry would be more aware of and sensitive to the wide range of investment opportunities here.

5. SUMMARY OF POTENTIAL AREAS OF NEW OPPORTUNITIES FOR GROWTH

This concluding part of Section V has outlined economic growth possibilities which exist in several sectors. The basic and primary sectors of our economy – energy, agriculture, tourism and forest products – receive substantial assistance and encouragement through a variety of government programs and these sectors will all be key to future growth. The newer and less mature sectors of our provincial economic base, such as petrochemicals and agricultural processing, are developing largely as a result of recent diversification and the evolution of our base sectors through processing and upgrading within our province. Other areas such as the finance sector, have grown to meet the demand for financing occasioned by the past rates of economic growth and very high levels of energy and property investment. The "high tech" industry is emerging in Alberta as a result of the impetus provided by research and technological discoveries made by the private sector, the universities and various government agencies. These latter sectors will provide significant new opportunities for Alberta to secure new jobs, a broader economic base and greater economic growth.

Section VI

Conclusions – Proposals for a New Industrial and Science Strategy for Albertans – 1985 to 1990

SECTION VI – CONCLUSIONS – PROPOSALS FOR A NEW INDUSTRIAL STRATEGY FOR ALBERTANS – 1985 to 1990

This concluding section evolves from a careful consideration of the economic background, political environment, new developments, and potential opportunities described in the previous sections and hence should not be considered in isolation to those preceding sections of this White Paper. For this reason there is no "Executive Summary" of the White Paper.

A. GOALS AND OBJECTIVES

The proposed economic goals and objectives for Albertans, 1985-1990, are:

1. To build upon the significant resources and talents which are the major strengths of our province and minimize as much as possible the impact of our inherent weaknesses.
2. To sustain a climate in Alberta for private sector profits and investment in order to maximize the opportunity for secure and skilled jobs for young Albertans.
3. To broaden and diversify the provincial economy to the greatest extent practical through the upgrading of our resources and new economic development, in order to lessen dependence upon the sale of unprocessed resources and the vagaries of world commodity markets.
4. To continue to upgrade the skills of our citizens to create higher productivity, higher job marketability and greater job satisfaction that flow from such higher skill levels.
5. To strive to balance the opportunities for growth throughout the various regions and centres of the province.

B. EVALUATION OF THE IMPACT OF SOME OF THE MOST SIGNIFICANT ECONOMIC CHANGES WHICH HAVE OCCURRED SINCE 1971 (SEE SECTION II FOR A BREAKDOWN OF POSITIVE AND NEGATIVE FACTORS)

1. The previous forecasts of a rapidly depleting oil reserve base have been altered by:
   a. economic production of the oil sands;
   b. prospects for more oil from heavy oil upgrading and enhanced recovery projects; and
   c. a declining anticipated rate of depletion of our conventional oil reserves.

These very positive changes have to be balanced by the need to dismantle the National Energy Program; by forecasts of only small real increases in world oil pricing in the short-term; and by the constraint of the high cost of capital (ie. real interest rates). Nevertheless, the future market for Alberta oil production to replace imported oils in Canada remains very positive.

2. The early 1970's situation for natural gas has been dramatically reversed from a concern over depleting reserves to a concern over shut-in production. The near term market prospects for natural gas both domestic and in the United States are promising.

This substantially positive development has to be balanced by a concern that marketing policies of the Federal Government may respond to political rather than economic realities.

3. The improvement in the cost efficiency of Alberta's primary agricultural producers as well as improvement in some transportation facilities has been offset by current worldwide product surpluses and protectionist policies together with continued Canadian freight rate inequities.

4. The substantial enhanced level of skills by many Albertans and the capacity of our institutions and programs, both public and private, to further upgrade our skills will allow a more rapid retraining of the part of our labor force now experienced only in construction and construction related sectors.

5. The Alberta economy has made significant strides in economic diversification particularly in:

- petrochemicals
- agricultural processing
- forest products
- coal developments
- telecommunications
- engineering services
- financial services
- tourist facilities
- broadcasting, publishing and film enterprises

with good potential for further expansion of new jobs.

However, external limitations (See Part C of Section VI) may constrain such expansion.

6. New potential opportunities for Alberta particularly in high technology and resource processing have been developed as a result of:

a. the emergence of a new group of entrepreneurs;

b. a "critical mass" of scientists;

c. research progress for new agriculture, forestry and other products;

d. world leadership in certain oil and gas finding and extraction techniques;

e. new international trade contacts and relationships; and

f. special knowledge in functioning in remote and northern areas.

7. The emergence of the Pacific Rim and the United States west and northwestern regions as major new potential markets for Alberta products and services is, in part, balanced by the rise of protectionist policies and attitudes throughout the world.

8. The province, subject to external limitations identified in Part C following, is better positioned for expansion and diversification as a result of:

a. a network of services and facilities to support a more mature economy;

b. a citizen acceptance of the importance to Albertans of international trade;

c. the financial back-up of the Alberta Heritage Savings Trust Fund.

C. EXTERNAL LIMITATIONS UPON ALBERTA'S INDUSTRIAL STRATEGY

The effectiveness of proposed strategies for a province such as Alberta in a federal system such as Canada's, is subject to very real and obvious limitations. It is useful to enumerate such limitations to avoid unrealistic expectations and to assure citizens evaluating this White Paper, that the Government recognizes that the Provincial Government's scope and capacity to influence economic and industrial strategy are significantly constrained.

1. Interest rates are determined by decision-makers outside the Province of Alberta.

2. Alberta's principal products are sold at prices which are heavily influenced by market forces outside Canada. This is particularly true of oil, wheat, feed grains, canola oil, coal, forest products and sulphur and is substantially the case with natural gas and red meats. In particular, the world oil price is a very significant factor in job creation in Alberta.

3. Canadian federal policies, which have a major impact upon Alberta in such areas as energy, agriculture, transportation, trade and tax fields, are established by the House of Commons controlled by members from central Canada.

4. Export market accessibility for Alberta products and services is subject to the tariff and non-tariff barriers and obstacles of the many countries to which Alberta now sells such products and services.

5. A provincial government which is fully committed to the market system accepts the reality that, notwithstanding its strategies or policies, the business and industrial decisions of investment or expansion or diversification are made independently each day by thousands of large and small private enterprise decision makers.

D. BASIC STRENGTHS AND WEAKNESSES OF TODAY'S ALBERTA ECONOMY

Section II detailed the positive and negative factors which have affected Alberta since 1971. In part, as a result of these changes, the Alberta economy has evolved with the following strengths and weaknesses:

STRENGTHS

1. The prospects are that all the oil Alberta can produce for the foreseeable future can be readily marketed, provided there are no regulatory or legislative obstacles to such sales.

2. Market prospects for the current surplus of natural gas are encouraging for the mid 1980's and beyond.

3. The production of our primary agriculture producers will continue year by year to be both high yield and marketable.

4. The potential for a variety of both new and expanded opportunities has developed within Alberta in the many areas set forth in this White Paper.

5. Alberta has developed an impressive core of entrepreneurs supported by skilled technicians, managers and craftsmen all backed by outstanding educational and training institutions.

6. The strong financial position of the Alberta Government with the lowest rates of taxation will continue to have a positive impact upon investor confidence in the province.

7. The province has a tradition of political stability.

WEAKNESSES

1. The province's potential for growth and prosperity is very significantly dependent upon the external factors set forth above in Part C of Section VI (see Page 55).

2. The province is not on tidewater and many of its products bear a high cost transportation component compared to the products of our competitors.

3. The province's comparatively small population makes it difficult for many enterprises to survive or expand on strictly the Alberta market.

4. There remains a shortage of Alberta controlled risk taking capital to fully develop our opportunities. This forces us to be quite dependent upon outside sources of decision-making for the commitment of capital.

5. Despite our steady record of providing the most jobs in relationship to the population of any Canadian province – a disproportionate percentage of our labor force is involved in those areas which do not of themselves create a large multiplier effect, such as in construction and construction related sectors.

E. ESSENTIAL INGREDIENTS FOR POSITIVE RESULTS FROM THE STRATEGIES

If Alberta is to have successful results from its strategies, the existence of the following conditions will be essential factors:

1. The world remains essentially stable and sustains at least the current commitment to "free trade" by most nations.

2. No unexpected technological breakthroughs occur which dramatically alter the demand for Alberta's food and energy products.

3. The Provincial Government is able to contain unrealistic demand for public expenditures and retain a low rate of tax as well as the fiscal capacity to support the strategies as and when required.

4. Alberta is able to contain the size of the Provincial budget as a proportion of the Gross Provincial Product so that real economic growth is as a result of private sector investment and exports. To do this, it is imperative that the current government policy on wage settlements be maintained, this policy being that public sector wage settlements must not lead those in the private sector.

5. Within Alberta, the citizens continue to support our private enterprise way of life.

6. When the final Industrial and Science Strategy for Albertans – 1985 to 1990, is presented, it not only be generally accepted by most Albertans and by most Alberta enterprises, but be equally understood in its detail and supported in its specific proposals.

F. THE PROPOSALS

Having regard to the foregoing assessments and evaluations – it is proposed for public discussion as follows:

1. RESPONSES TO POLICY OPTIONS

Starting on Page 42 in Section V, seven policy options facing the Alberta Government, which bear on the nature of the specific proposals for a new Industrial Strategy and Science Policy, are set forth. Suggestions here are proposed to respond to these seven policy options.

(a) The Provincial Government should continue with its priorities (See Speech from the Throne 1984) to reduce the role of government by continuing to privatize as much of its operations as practical and by reducing the amount of government regulation, particularly for small Alberta businesses. The Alberta Government should also sustain its efforts to encourage a positive climate for private sector investment in the province.

However, the Alberta Government should be prepared to take even bolder action in developing with the private sector large scale projects such as oil sands and heavy oil plants or transportation facilities such as the Prince Rupert Grain Terminal. If the Alberta Government involvement is necessary as a catalyst to expedite such projects, that either cannot or will not be completely undertaken by the private sector, then to implement the new Industrial and Science Strategy for Albertans – 1985 to 1990, the Alberta Government should be prepared to use its fiscal capacity and other strengths to do so.

Such involvement could include a mix of measures as illustrated by the following examples:

a. a deferral of royalty revenues eg. Syncrude Expansion Project;

b. providing loan funds eg. Prince Rupert Grain Terminal;

c. providing loan guarantees eg. Husky Oil Upgrader;

d. direct equity involvement eg. Syncrude Project.

(b) The Provincial Government should decide in favor of present job activity and deferred revenue flows in the financing of large provincial projects, provided the Province's credit rating and favorable tax structure are not significantly jeopardized.

This does not extend to further reduction in the net level of royalties for conventional oil and gas exploration and development. After instituting the Oil and Gas Activity Plan of April 1982, the average net royalty rates after incentive and other special programs for oil are approximately 24%, and the comparable figure for natural gas and by-products is approximately 19%.

(c) The Alberta Government should select specific sectors or areas for special support.

The nature of interprovincial and international competition including subsidies now requires a response. Care must be taken to ensure such support is structured in a way to minimize the risk of potential inconsistency with international obligations.

The criteria involved should be security and expansion of primary or secondary jobs not level of dollar investment. The key is that supported enterprises must be able to sustain their viability over an extended period of time. Such measures should not be at the expense of existing operations in the same fields.

The high technology and resource processing fields should be prime candidates for such specific support (see Pages 44 to 46).

(d) The Provincial Government should use tax incentives much more aggressively to encourage activity and growth. Tax measures are more effective and more long lasting in encouraging risk investment than subsidies or grants. They also tend to reward success and be more equitable in treating enterprises which are in competition. However, special circumstances may warrant expanded use of subsidies or grants in order to compete with other provinces or to meet a particular objective where tax incentives would be inadequate.

(e) The Alberta Government should request Alberta's advanced educational institutions to priorize any supplementary funding requests. If the universities, colleges and technical institutes choose programs and faculty expansions which will effectively complement the Industrial and Science Strategy, the Alberta Government should give priority to such funding subject to agreed conditions.

(f) The Alberta Government should act as a catalyst to initiate export consortia, provided that with the government's participation, the prospects of the sale of the product or service are improved. The Alberta Government should make the decision in consultation with private sector exporters on a case by case, and country by country basis without any significant parameters other than the test of improving the prospects of the sale.

(g) The Alberta Government – subject to an unexpected withdrawal by other provinces – should develop its own Alberta procurement policy to give advantage and preference to Alberta based suppliers and contractors. It should test step by step the net benefits of this new policy and evaluate first the current decision regarding the steel fabrication for the two new metropolitan hospitals before further enlarging such a provincial procurement and preference policy.

2. MAINTAINING CERTAIN EXISTING STRATEGIES

A number of the key elements of the 1971-74 Industrial Strategy are as important today as they were then and need to be re-emphasized and reaffirmed as basic elements of our Industrial Strategy for Albertans. They are:

(a) **TO MAINTAIN THE PRESSURE TO OBTAIN MARKET VALUE FOR OUR NATURAL RESOURCES.**

The October 28, 1980 federal National Energy Program would have had our Alberta crude oil, which was declared to be conventional old oil, selling at well below value at the wellhead. As a result of the September 1, 1981 negotiations and subsequent amendments and agreement, much improved prices were negotiated. Alberta must continue to press the Federal Government for market pricing for all crude oil.

This particular market strategy has since 1973 been crucial for Alberta. Our determination to continue to struggle since 1973 against the misuse of the jurisdictional power of the Federal Government and certain supporting consuming provinces has been a major factor in Alberta's growth and progress over the decade.

(b) **TO CONTINUE TO STRIVE TO PROCESS AND UPGRADE IN ALBERTA, AS MUCH AS PRACTICAL, OUR RESOURCES SO THAT WE DO NOT FURTHER EXPORT JOBS WITH OUR RESOURCES.**

Our considerable success in developing a natural gas based petrochemical industry in Alberta in the face of a federally subsidized oil based petrochemical industry in central Canada has been most significant. More needs to be done to assure our petrochemical industry can weather cyclical trends and continue to expand.

Specialized refining construction such as Shell's new Scotsford plant and Imperial's new Strathcona plant have contributed to the success of this processing strategy.

This is a key element of our strategy and the suggestion (Page 57) regarding special support for a particular industry, if required, should be utilized with determination.

(c) **TO CONTINUE TO STRENGTHEN AND IMPROVE OUR MANPOWER TRAINING PROGRAM INCLUDING BOTH INSTITUTIONAL AND ON THE JOB PROGRAMS.**

Our training institutions and programs have developed a broad range of skills in Alberta.

The current budget provides $95 million for these objectives plus an additional $162.5 million for vocational training centres and technical institutes.

At issue is the question of whether programs should be determined on the basis of what Albertans request or on forecasted needs. During the current adjustment period of high unemployment in the construction field it might be difficult to substantially modify the structure.

In the medium term – the manpower training element should remain a very high budgetary priority. The world of 1990 will be a fiercely competitive world where only a skilled society can prosper.

(d) TO MAINTAIN AN ECONOMIC CLIMATE WHICH WELCOMES OUTSIDE INVESTMENT.

Albertans have always recognized both the benefits of outside investment in providing jobs and the need for capital from other countries to help develop our resources and our opportunities. Alberta's persistence in this area has aided in offsetting, in part, the ill conceived Foreign Investment Review Agency.

This strategy will require constant travel by Albertans to financial markets by both public and private sector leaders to convince foreign investors that Alberta is a preferred place for investment.

(e) TO CONTINUE TO USE OUR RESOURCES TO ENCOURAGE DIVERSIFICATION AND BALANCED GROWTH.

This continuing strategy is reflected, for example, in the appropriations of the Capital Projects Division of the Alberta Heritage Savings Trust Fund, which assist the private sector initiatives.

(f) TO ASSURE THAT OUR ENVIRONMENTAL STANDARDS CONTINUE TO BE UNDERSTOOD, CONSISTENT AND FAIR.

The policy of negotiation with plants and operations as to the compliance with standards and to improve environmental performance has worked well in preserving jobs and protecting our environment and should be continued.

(g) TO CONTINUE TO DECENTRALIZE GOVERNMENT OPERATIONS AS FAR AS POSSIBLE.

Much has been achieved in meeting this goal. This policy should be reaffirmed.

(h) TO TAX PROPERTY IN A MANNER WHICH DOES NOT ACT AS A DISINCENTIVE TO INDUSTRY SITING IN THE PROVINCE.

Care must be taken so that provincial standards for assessment of machinery and equipment coupled with mill rates for municipal, local school and provincial school purposes, do not create taxation levels which discourage new industry and expansion of existing industry.

3. EXPANDING AND REDIRECTING THE EMPHASIS OF CERTAIN KEY STRATEGIES TO RESPOND TO NEW CIRCUMSTANCES AND NEW OPPORTUNITIES

(a) TO EXPAND THE INTERNATIONAL MARKETING OF ALBERTA PRODUCTS AND SERVICES

Competition in the international marketplace will continue to increase over the decade ahead. Increased Alberta exports will provide a base for steady economic growth, new employment opportunities and a higher standard of living overall. Alberta's success in the international trade arena has already been impressive, yet a continued emphasis on expanding our trading activities needs to be maintained and re-examined. The dynamics of international trading patterns and barriers to trade among the world nations require all Albertans to resolve to become more productive and competitive in a world economy.

Alberta's export marketing assistance, policies and programs must consider the following strategies for 1985 to 1990:

1. **We need to identify the most promising market targets:**

As suggested at Page 22, we should develop a specialized marketing strategy for each of Alberta's major exportable products and services targeted on a country by country basis (region by region in the United States). The strategy requires a constantly updated assessment of the markets including the nature of the competition; the range of acceptable terms and conditions; and a specific forecast of probable market trends including growth opportunities. In the case of primary products there should be a supplementary assessment of upgrading and processing potential here in Alberta before shipment.

2. **A new vehicle – an "Alberta International Export Corporation"**

Consideration should be directed towards the need for a new vehicle – an "Alberta International Export Corporation" – which would provide a range of financial assistance to Alberta businesses: working capital loans for large overseas orders; seed financing for pre-investment feasibility and travel costs; and consortia financing to allow Alberta based companies to undertake major offshore foreign projects.

This assistance would be targeted to Alberta based corporations, including Canadian multi-nationals head officed in Alberta, where the probability is that major economic gains and new jobs will benefit Alberta first.

As the Premier stated in his address to the Pacific Rim Opportunities Conference in Calgary October 7, 1983, "In terms of new markets – let's concentrate – let's use the rifle approach – not the shot-gun approach. Let's specialize with products and services where we are the most competitive. Let's also differentiate between selling an item of equipment and a service, but be aware that in some cases they both go hand in hand."

3. **Focus on our marketable strengths in new or emerging industries which couple strong growth, diversification possibilities with our intellectual potential in Alberta.**

There is a real strength in Alberta for expanded sales (invisible exports) of new technology and expertise, ranging from the world level oil and gas technologies available here, to software packages developed for particular Alberta applications. Smaller corporations should be encouraged to participate, together with individuals and universities.

This involves a specific strategy for selling technology; the difficulty of "one-shot" sales with no continued return must be overcome.

4. **Alberta Tax Incentive Programs**

A number of income tax incentive programs could be developed to encourage new investment here for expanded international trade: rapid depreciation of infrastructure costs to increase our export potential; some tax relief for profits earned abroad by Alberta corporations for a limited period; tax credits or deductibility of other pre-sale, export development costs (see Pages 62 to 63).

5. **An Alberta International Business Institute**

Separate from the universities, this Institute could attract international students to Alberta for an advanced degree in international trade and relations. Ties between Alberta and the student's country would grow, with long-term benefits derived from familiarity with Alberta business institutions and personal contacts (see also strategies on education at Page 67).

6. The province should organize a mechanism to draw upon the talent and experience of various cultures now resident in Alberta. As an **Advisory Council**, this group(s) would advise the government and our private sector on ways to expand our trading opportunities into their country of birth.

7. Expand our working relationship with the most interested **Banking Organizations** not only to attract investment into Alberta, but to develop relationships which will facilitate marketing our products and services in certain targeted markets.

8. Alberta's six **Foreign Offices** in London, Tokyo, Hong Kong, New York, Houston and Los Angeles, provide a valuable tool for assisting the private sector to sell our products internationally and for gathering the information that is vital to government and business decision-making regarding world commodity prices, economic trade trends, new market opportunities, and the activities of our competitors. Consideration should be given to the expanded role that the offices can play in this new strategy, and whether or not additional offices are needed, taking into account world economic trends and Alberta's particular strengths.

9. Take the leadership in pressing for a **Canadian Trade Strategy** to complement this Alberta trade strategy towards the objectives set forth in the Premiers' 1983 Conference communique (see Pages 22 and 23).

(b) TO TAKE ADVANTAGE OF EVERY OPPORTUNITY TO PROCESS OUR AGRICULTURE PRODUCTS IN ALBERTA.

The objective is the establishment of a "world class" food processing sector based on Alberta's natural advantages in basic food and feed production (see recent developments – Pages 47 and 48).

This requires, in particular, resolution of the many problems facing the meat packing industry such as outmoded facilities, alleged non-competitive wage levels, freight rates and other matters. It requires a more concentrated effort to expand the market for our meat products in the United States and the Pacific Rim.

This strategy also requires an updated evaluation of our current food processing industry in terms of economic vitality, possible restructuring and identification of new opportunities to locate food processors here in Alberta.

The analysis referred to at Page 48 to identify current food imports into Western Canada, could indicate potential for expansion of food import replacement opportunities.

Some of the transportation strategies set forth at Page 63 complement this area as do the new tax and fiscal policy ideas set forth at Pages 62 to 63.

(c) TO FURTHER ENCOURAGE EXPLORATION FOR NEW OIL AND GAS FIELDS IN ALBERTA.

Although there has been some pressure to replace our various incentive programs for exploration for new oil and gas fields with a simplified royalty system, such a change should be considered very carefully. The incentive system devised in 1974 and adjusted from time to time has worked well. In addition, the policy initiatives in respect of deeper drilling rights and enhanced oil recovery have proved effective.

The suggested strategy is to further emphasize the "reward based" incentives so as to maximize exploration and development of conventional oil and natural gas.

(d) TO EXPAND OUR EFFORTS TO ENCOURAGE SMALL BUSINESS IN THE PROVINCE.

The people of Alberta recognize that small business is in itself a vital economic force in our province, which forms the majority of businesses in each sector of our economy. For small businesses to continue to generate the majority of new jobs created in our province, and to lead in innovative developments, they must have the following:

(i) Access to capital sources for both equity and long-term debt. The Small Business Equity Corporations Program, and the Alberta Opportunity Company, serve both needs.

(ii) Access to information on marketing strategies, new product development, and general management problems.

(iii) Access to qualified personnel and training programs for technical and managerial skills.

(e) TO CAPITALIZE UPON OUR TOURIST POTENTIAL.

To fully develop Alberta's tourism potential and to establish a significant tourist industry over the next decade (see Page 25), we must be even more responsive to national and international markets. Given our natural attractions, our major facilities now in place and our reputation for managing world scale events, Alberta's tourism industry should enhance our economic growth over this period. Continued government investment in basic services and major facilities is aimed at developing Alberta's potential as a four season destination point.

Subject to our financial position, further Provincial Government investment in a northern Alberta recreational area, similar to Kananaskis Country, should be considered. The industry, in meeting its commitment to expand our tourist potential, must respond with first rate service in all areas and a system to monitor its own performance, particularly as to courtesy and well maintained facilities.

(f) TO ENCOURAGE THE CURRENT POTENTIAL FOR EXPANDING OUR FOREST PRODUCTS INDUSTRY.

1. Applied research into the economical use of aspen (hardwood) should be encouraged and accelerated (see Page 24). Financial incentives should be made available to encourage the development of new facilities committed to using hardwood.

2. Further programs for the forest products industry to help defray infrastructure costs associated with the construction of new facilities, especially in northern Alberta, should be developed (see Page 24).

3. Financial assistance should be made available to existing small to medium sized sawmills to support the modernization of their operations in order to encourage a broader range of lumber products and the use of smaller trees. As well, the integration of lumber production with pulp production should be encouraged in order to enhance chip demand and price.

4. The Government of Alberta should continue to press for freight rate adjustments on forest products.

4. FURTHER STRATEGIES - 1985 to 1990

The following strategies supplement the strategies just set forth between Pages 58 and 62 and respond to the policy option suggestions set forth between Pages 56 and 58. They also reflect the new circumstances of the Alberta economy evaluated on Pages 53 and 54.

(a) TAX AND FISCAL POLICY

1. Expanded use of Alberta's own corporate tax incentives

By legislation in 1980, Alberta joined Ontario and Quebec in bringing "back home" its corporate tax jurisdiction. The Alberta Corporate Tax System is now fully operational and functioning smoothly. Programs now administered include the Royalty Tax Credit, the Small Business Venture Capital Program, the Rental Investment Tax Credit.

As Alberta completes the transition/adjustment economic phase, the stage is now set for implementing new initiatives using the Alberta Corporate Tax System.

In line with overall provincial objectives, the system could be used to further assist small business; to encourage selected or general manufacturing, processing and diversification; to buttress our export sales; to further assist research and development; and to add momentum to the strength of Alberta as a growing financial centre.

There could be tax incentives for specific items, tax credits, tax deferrals, refundable tax credits, and expanded deductions from taxable income.

Such "tax incentives" should be efficient, fair and simple to understand.

Some possible initiatives which could implement this updated Strategy over the years ahead are:

a) tax credits for export trade to offset part of the costs of
   - market research
   - foreign sales missions
   - foreign construction bidding by Alberta companies
   - bidding on supplying an Alberta product overseas;

b) a tax credit or tax deferral for investment in equipment and buildings to be used for certain upgrading and processing activities;

c) a tax credit or expenditure deduction for research and development as well as prototype testing in Alberta; and

d) a tax credit to cover the costs of the actual marketing of new products and services.

2. **Implement Alberta's own personal tax system** rather than continuing to follow the Federal Government's uniform tax system.

   There are three qualifications to this proposal:

   a) Time should be given to allow a new Federal Government to determine its fiscal incentives for job creation in western Canada.

   b) The evaluation of administrative costs and manpower should include an assessment of the magnitude of cost savings that will accrue from utilization of the most modern computer and information technology.

   c) Such a move be made only in tandem with personal tax simplification and with specific incentives to encourage new job activity in Alberta, such as elimination of the capital gains tax.

This White Paper views this specific proposal as having profound implications impacting positively upon many of the other strategies. Investor confidence would be very significantly encouraged towards Alberta.

The scope of tax incentives to stimulate new jobs and secure existing jobs in Alberta, by being able to encourage investment in specific ways tailored to Alberta's unique stage of development and strengths, is exciting to consider!

(b) ENERGY PROJECTS

1. As noted on Page 57, the Alberta Government should be prepared to use the Alberta Heritage Savings Trust Fund or other sources for direct equity participation in oil sands or other major energy projects, if necessary to expedite job activity and the development of Alberta's vast energy resources.
2. The Alberta Oil Sands Technology and Research Authority should fund, in joint venture with the private sector, economically promising projects to develop new oil sands mining techniques and new in-situ oil sands pilot projects.
3. There should be a greater effort to use our abundant natural gas reserves in new ways, such as agricultural upgrading and processing and possibly compressed natural gas for vehicles.

(c) TRANSPORTATION

1. Additional unique Alberta strategies such as the recently announced Alberta Inland Container Port plan as well as the initiative of the new grain terminal at Prince Rupert, designed to facilitate reduced transportation and handling costs for Alberta shippers, should be a key thrust of the Provincial Government in the years ahead.

2. A concentrated effort should be made to change the current federal transportation policy for long distance shipment of goods, now based on the user pay principle, to a new national policy having regional development as the primary focus.
3. Under special circumstances, the existing policy of the Commercial Division of the Alberta Heritage Savings Trust Fund should be altered to relax the requirements for strictly passive investment, particularly in transportation entities.
4. An examination should be made of the costs and benefits of Alberta investing in certain types of storage and handling facilities in countries buying or interested in buying Alberta products, which could improve our competitive export position.
5. Continued investment by Alberta in transportation infrastructure will enhance and expand existing roads, highways, bridges and airport facilities.
6. New initiatives need to be developed to provide for a cost sharing between industry and government in the building of new roads and highways to serve the job creating resource sector particularly for the forestry, oil and gas, agriculture and coal processing industries.

(d) TO STRENGTHEN OUR PRIMARY AGRICULTURE PRODUCERS

Throughout the White Paper there is the constant theme of the significance of agriculture to the Alberta economy and the prospect of new opportunities. The industry is the subject of a specific sectoral review between Pages 19 to 21 with the objectives of our agricultural policy set forth at Page 20.

The potential for processing more of our agricultural products has been reviewed from Pages 47 to 48 and proposed directions and expanded proposals for processing are presented at Page 61.

Provincial Government policy and programs in primary agriculture have, since 1971, focused on maintaining and improving net farm income.

Many programs such as the Farm Fuel Distribution Program, the Property Tax Reduction Program, the Rural Gas and Natural Gas Price Protection Programs and the recent Interest Shielding Program have all assisted in maintaining and improving net farm income. Specific special support programs such as the 1976 Cow-Calf Subsidy Program, the 1981 Beef, Cattle and Sheep Support Program and the 1982 Canola Crushers Financial Assistance Program are examples of specific programs to respond to special circumstances.

Suggested new initiatives and strategies are for the future are as follows:

a) The proposals for new international marketing strategies set forth between Pages 59 to 61 should assure that agricultural product sales are given the first priority. In particular, the proposed "Alberta International Export Corporation", should be directed first towards agricultural sales opportunities (see Page 60).

(b) Alberta must vigorously pursue national and international agreements which reduce the tariff and non-tariff barriers to the export of Alberta agriculture products throughout the world, particularly to markets in the United States, Pacific Rim and the European Economic Community.

The federal government must be convinced to place a much higher priority than in the past on agricultural products during upcoming multilateral negotiations on GATT and also on bilateral trade arrangements with other nations.

(c) The proposed new tax policies outlined on Pages 62 to 63 should be directed at the outset towards ways and means of improving net farm income.

(d) Alberta must be willing to undertake major additional provincial initiatives to improve agricultural transportation efficiencies in the years ahead (see Page 63). Significant benefits will result from these initiatives, and the Province's commitment in this area has clearly been

demonstrated with the financing of the Prince Rupert Grain Terminal, the purchase and upgrading of Inland Terminals in Alberta and the purchase of 1,000 grain hopper cars.

(e) A concentrated effort must be made to amend the current federal transportation policy as it affects agriculture.

An opportunity exists to enhance value added agricultural production in Alberta through amendments to the Western Grain Transportation Act. The method of payment has significant potential not only to stimulate value added processing but as well, transportation and other efficiencies.

The cap of 31.5 million tonnes on export grain production must be removed so that grain producers can reach their true potential for production. The Grain Transportation Act should also be altered so that transportation cost increases for moving grain are tied more directly to the price of grain.

The present user pay policy should be replaced with a transportation policy of regional development.

(f) The Agricultural Development Corporation has replaced the Farm Credit Corporation as the major government lender to Alberta's farmers. However, new programs need to be considered to further assist Alberta's primary producers in obtaining necessary credit at reasonable rates to maintain and expand their operations.

It is important to develop further policies to attract commercial credit and create new financial mechanisms. An "Alberta Agriculture Credit Bank" and the financing of the industry by the sale of agri-bonds are two proposals for consideration.

A further proposal to assist in the financing of land purchases involving the guarantee by the government of purchases financed by the vendor (vendor financing) should be considered.

New programs to assist Alberta farmers improve their business and credit management skills need to be developed.

(g) It is important to ensure that all farmers have access to the efficiencies that computer technology can provide in communications, in production technology and in business management.

Bio-technology, genetic engineering, computer software, will play a key role in enhancing agriculture efficiency in the 1980's and are saleable in export markets. Government policy should be designed to take full advantage of the research, development and transfer of these technologies to the primary producer.

(h) Consideration should be given to further expanding the agricultural land base, consistent with the demand for new land and improved farm commodity prices. Considerable effort should be made to maximize the best use of the existing Crown lease farmlands. Range improvement is a method of improving existing Crown grazing leases. Consideration should be given to restructuring the leasing and selling system of Crown lands with the intent of more intensive and better use of Crown owned agricultural lands.

Major commitments have been made since 1974 in upgrading and expanding Alberta's irrigation systems and land base. Priority must be placed on additional river basin management and water storage programs which will enhance the present initiatives of irrigating new acres of agricultural lands.

The proposed public forums on the White Paper should provide farm organizations with an ideal opportunity to present their own practical and constructive suggestions.

(e) SCIENCE AND TECHNOLOGY POLICY FOR ALBERTA

1. A significant level of government research and technology activity has developed within the province since 1971 (see Pages 34 to 36 and Pages 44 to 46).

The time has come to coordinate all these activities and to present a **"one window"** approach to the public and investors.

This activity should take on a province-wide profile and should be catalytic in bringing together academia, the involved public, the private sector and government to address the issue of technology transfer and optimize opportunities for commercialization within the province.

The role of government should include testing new products to specifications, a decided shift from basic to applied research, and identification of appropriate building blocks for the development of technology within the province.

It is not contemplated that the "one window" approach would include either Alberta Oil Sands Technology and Research Authority (AOSTRA) or the Alberta Heritage Foundation for Medical Research (AHFMR).

2. The creation of a "one window" entity would be seen to also include the focal point for the delivery of **funding** to research, development and implementation of technology.

The funding problems that need to be addressed include criteria for funding, assessing the quality of proposals, streamlining the time required to respond, and determining the appropriateness for the recovery of government funds advanced. In addition it would be necessary to develop ways to involve private sector consulting activities; create methods of long-term funding in health care technology; facilitate a cost/risk shared approach to encourage technology development in the private sector; and develop a proposal for an extended-term commitment of funding, recognizing that much of this activity is a long-term process.

3. There is a demonstrated need for the Alberta Research Council to develop an **Alberta Innovation Centre** with province-wide access.

The Centre would provide assistance in product and process development; patent, copyright and licensing support; contracts; incubation facilities; industrial engineering; and commercialization of new products and processes.

This structure should be responsive to changing needs and should, wherever possible, further facilitate the interface between the private sector and our universities.

4. Alberta is particularly well positioned with science funding, scientific research and a highly trained available work force to develop a significant indigenous **pharmaceutical industry**.

To initiate this activity it will be necessary for the Federal Government to remove the compulsory licensing from import provisions of Section 41(4) of the Patent Act. No innovations in the pharmaceutical industry will take place in Canada until this change in federal law is effected.

(f) COMMUNICATIONS AND INFORMATION – A NEW FIELD OF PROMISE

Marketing of new communications and information technologies must be recognized as an important export commodity with long term development potential.

The government should actively support the development and maintenance of high quality systems and diversified communications systems. This will be accomplished by means of digitizing equipment, expanded use of fibre optics, mobile communications, satellite communications, product inter-connections, and other means to facilitate audio, visual and digital communications.

The government should also encourage the development of information technologies and systems, principally in the private sector. Components of such development will include software development and marketing, instructional technologies, data bases, technology mergers (ie. the computer and the video disc), and others.

(g) NEW DIRECTIONS FOR EDUCATION BY 1990

1. The mandatory program of studies in our education system should teach students about Alberta's economy, by instruction and by example. Considerations should include the model of the market economy and its application to Alberta in terms of the nature of the resource base; the skills of the people; the infrastructure; the impact of federal economic, fiscal and monetary, and transportation policy; the role of financial and credit institutions; the effect of the tax system; and the rights and responsibilities of employees, employers, regulating agencies and government.

Education should foster ideas of risk taking, innovation and the pursuit of excellence.

2. Alberta's educational system should coordinate its policies and curriculum in conjunction with the 1985 – 1990 Industrial Strategy objectives particularly in international marketing. The study of foreign languages, particularly those of the Pacific Rim countries, should be enhanced and promoted in the primary education system. At the undergraduate and graduate level, scholarships and bursaries should be made available to students pursuing language studies. Particularly important will be student exchange programs between Alberta and Pacific Rim countries.

In the study of other countries, emphasis should be given to present and potential trading partners, and the study should explore the implication of trade.

3. The current new program to provide computers to our basic and secondary education students should be adequately supported over an extended term. This will assure that young Albertans graduate with world-class computer expertise as Alberta evolves as a major participant in the "information age".

4. The universities, colleges and technical institutes should be encouraged to expand their facilities for certain areas of science as well as business administration focusing on the international field. A special visiting lecturers program should be considered.

(h) PETROCHEMICALS – FUTURE ACTIONS PROPOSED

As noted at Pages 46 to 47 Alberta's petrochemical industry is based on plants producing on a world scale. Its vitality and expansion is based on export demand and world prices. The following policies and strategies for the future are proposed:

1. Press the Federal Government to remove taxes on feedstock to encourage capital expansion and have a federal taxation review based on net profits of the industry.

2. Sustain a feedstock pricing system that assures the long-term competitiveness of the Alberta based industry.

3. Reaffirm policies that provide plants with long-term priority supply of feedstock.

4. Press for petrochemicals to form a specific area of bilateral "free trade" with the United States.

5. Cooperate with the producers to access promising new markets in Pacific Rim countries.

6. Take the necessary steps to put in place ample provision for contemporary tidewater facilities for petrochemicals including direct Provincial Government investment if required.

7. Aggressively seek realistic freight rates for petrochemicals to tidewater in recognition of the realities of a world competitive market.

8. Encourage as far as practical the optimum manufacture of end products here in Alberta.

9. Continue to develop such policies and strategies in close cooperation with current and new private sector enterprises and, as required, publicly support the needs of the industry.

(i) ENCOURAGING THE GREATER AVAILABILITY OF RISK EQUITY FUNDS AND OVERALL CAPITAL NEEDS.

Continued expansion of the Alberta financial sector will provide job security and new employment opportunities (see Pages 48 to 50). Encouraging Albertans to invest their personal savings here will stimulate economic growth:

Achieving these objectives can be accelerated by:

1. Maintaining an economic environment which maximizes the disposable income of our citizens available for personal equity investment (see Tax and Fiscal Policy on Pages 62 to 63).

2. Encouraging more corporations to select Alberta as their head office – thus enlarging the probable identification of Alberta based investments.

3. Expanding the role of Treasury Branches through
   - attracting savings, possibly by increased deposits from major urban centres as well as rural Alberta;
   - export financing, to support the marketing of Alberta products worldwide;
   - merchant banking;
   - loan syndication arrangements with other Alberta based financial institutions to accommodate larger loan opportunities.

4. Strengthening our regional banks as outlined on Page 49.

5. Facilitating an expansion in investment by Albertans in stocks of new and growing Alberta companies, via the Alberta Stock Exchange (see Page 50). Thousands of Albertans who have never considered stocks can be stimulated to invest in the shares of Alberta companies. Knowledgeable investors could be encouraged through revised and streamlined prospectus requirements.

Investors could be encouraged by new exemptions for raising of seed capital, for offering memorandums to small groups of investors, enabling the much needed raising of equity capital for small business.

6. Encouraging entrepreneurs from other parts of the world to move to Alberta and bring both risk capital and extensive business experience.

(j) NATIONAL POLICY FORMATION

In the coming months Alberta should:

1. Encourage the other Canadian Premiers at the Annual Conference in Prince Edward Island in August to suggest that the new Federal Government should develop a corresponding National Industrial and Science Strategy for medium term planning.

2. Continue to develop common and consensus positions with the other provinces to help supplement the strategies set forth in this White Paper.

3. Press for a Constitutionally recognized open Annual Conference of the First Ministers' on the Economy for a specified week in November each year.

4. Again press for a made in Canada monetary policy so that real interest rates do not choke economic recovery in Alberta.

G. FISCAL PARAMETERS

The new strategies in the aggregate should be constantly assessed in terms of implementation in relationship to Alberta's ability to maintain a "AAA" credit rating.

H. FINAL OBSERVATIONS

As stated at the outset, the purpose of this White Paper is to generate public discussion about possible changes or modifications in Alberta's existing Industrial Strategy and, at the same time, respond to the perceived need for a Science Policy for the province.

Some might suggest that such an effort is not worthwhile – that external factors will prevail and that a Provincial Government has too little scope to influence industrial and science decision-making. This is not the view of the Alberta Government.

The term "Industrial Strategy" was defined in this Paper (Page 39) as the sum of a government's efforts to try to stimulate business activity to influence economic growth. The existing strategy has been relatively well understood and has been useful in coherently responding to required decisions within the context of an overall plan.

The dramatic factors that have affected Alberta and Albertans since 1971 and provide such exciting challenges for the future, call out for an updated Industrial and Science Strategy for Albertans – 1985 to 1990. The public at large properly expect the Provincial Government to have a comprehensive plan of action. Officials within the Public Service and its agencies as well as the business and labor communities benefit from such an overall and understood plan of action. Perhaps the major benefit is that specific decisions are less "ad hoc" and are made in a more integrated and co-ordinated manner.

For Albertans, it is very useful to understand the external limitations which constrain the fulfillment of the strategies (Page 55) and set forth as well, a list of our strengths and weaknesses (Pages 55 to 56). It is also useful to remind ourselves of the essential conditions which will allow positive results from these strategies (Page 56).

Some may question the heavy emphasis on economic matters and suggest it reflects a lack of priority to social concerns. These terms are deceptive because an Industrial Strategy has as its basic objective the securing of existing jobs and the training for and encouragement of new jobs. Today this is probably the overriding "people issue" in the province.

The strategies are directed towards an Alberta where the quality of life is high and improving. The capacity of a society to care for the disadvantaged in the longer term is dependent upon the productivity and competitiveness of the economy.

The Alberta Government trusts that the interpretation of this White Paper will be taken in the context of its priority and resolve to continue to respond with a "safety net" to meet the needs of the elderly, the handicapped, the sick, the unskilled, and the disadvantaged.

As well, the efforts of the government to continue to work with the private sector in responding to current concerns, are unabated and not diverted by this process. Alberta is moving through the current period of adjustment with realism and confidence.

In evaluating the White Paper, readers are asked to consider the Proposals (starting on Page 56 with four separate sections) as a total package, in which there is a substantial element of interaction and interdependence.

In conclusion, reference is made to the statement of Goals and Objectives set forth on Page 53. They are realistic goals and objectives for a province at Alberta's state of development. Our basic industries – food and energy – have long-term growth potential and are supplemented by new areas with good prospects for expansion.

We recognize that some citizens are having difficult times today and we are determined to continue to help resolve those difficulties. However, even today there are more actual jobs in Alberta in relation to total population than in any other province in Canada. In comparative terms, the vast majority of Albertans are enjoying a good quality of life with freedoms and opportunities. In our view, once we get through the current difficult adjustment period, Alberta's best days will be ahead of us!

Appendix A

APPENDIX A

Excerpt from Alberta Hansard – October 23, 1974

ECONOMIC GOALS

Mr. Lougheed:

Mr. Speaker, we've tried to outline the economic goals of the Alberta Government and the basic goal is that, as a province in transition, we should diversify and become less dependent upon the sale of unprocessed resources, particularly non-renewable resources.

We have four supplementary goals; first to spread the growth on a balanced basis across the province – "decentralization" may be the term if you prefer it; I like "balanced economic growth" – to capitalize upon the potential, and I say the spirit too, of the smaller centres of this province and to assure a better quality of life for our citizens living not just within the smaller centres but, in my judgement and I think that of the people of the province, within the metropolitan areas as well. My reading of the people of Alberta – one can't read too much into the plebiscite and the recent municipal election in Calgary. But one can read something into it and that of course is that I sense that the people do not want inordinate growth; that they want orderly growth within the metropolitan areas is one that's accepted by our citizens at large.

Secondly, to strengthen in this province what is truly free enterprise by strengthening the small and the locally-controlled businesses in the province. Thirdly, by upgrading the skills of our citizens to create higher productivity, greater income and more job satisfaction than, frankly, comes from a lot of unskilled work. And fourthly, to capitalize upon our natural advantages in Alberta, such as being the gateway province to the north, the recreational potential of the eastern slopes, the untapped food-growing potential of the province and the assured source of supply we have for petrochemical feedstock.

This basic goal and these four supplementary goals in total give us the foundation for our overall strategy which I would like to underline and present to the members in a summary way. I presented it to the Calgary Chamber of Commerce in early September. I thought that was an important opportunity and will be meeting again with the business community in November – I think it's November 14 here in Edmonton – to review some of their views, and in due course with labor groups in the province to see what input they can put into our way of implementing this industrial strategy, or if they have any refinements they would like to make.

First of all, to maintain our continued pressure for fair market value for the sale of our natural resources; next, to use a portion of government revenues as capital funds to encourage diversification and decentralization; next, to insist that our resources are, as much as practical, processed and upgraded in Alberta so that we do not export jobs with our resources; next, to recognize that transportation is the key to diversification for this landlocked province of ours, far from the population and market centres and a substantial distance from tidewater; next, to take advantage of every opportunity to process our agricultural products here in Alberta prior to shipment; next, to capitalize on our tourist potential which is a very promising area for small and local business and for new jobs for our younger Albertans, both young girls and young men; next, to offset our transportation cost obstacles by holding our energy costs low to give a competitive advantage to our businesses – and our two-price natural gas system and the lowest gasoline tax in Canada is a way we have gone about doing it.

Next, to establish taxation policies which will encourage local business, continue to maintain our position as one of the few provincial governments, with no estate tax, the only provincial government with no sales tax, and move forward with a new corporate tax system which emphasizes incentives for small business.

Next, to maintain a climate of welcoming outside investment. We can't be an island here in Alberta. We can't expect to sell in other countries and around the world if we try to create walls and barriers here. All we ask is that they come within fair conditions to meet our environmental requirements, to meet our standards of giving an opportunity to citizens here to participate and, as corporate citizens, to contribute in terms of who is participating in terms of the subcontracting, the consolidating, the purchasing and the manpower.

Next, to emphasize in government programs, skill upgrading; to provide as much as possible, needed manpower requirements by Albertans. Here I refer to our expanded technical and vocational training programs, our apprenticeship programs and our job training emphasis.

Next, to encourage research by both private and competitive groups to give competitive advantage to local groups and hence develop specialty industry in this province.

Next, to decentralize government operations as far as practical for the smaller centres, and at some appropriate stage I would like to review what we have done there.

And finally, to ensure that our environmental standards are understood, consistent and fair. And here I refer to the air quality standards that have been developed over the last few years in consultation with those who have been affected.

Mr. Speaker, this is the industrial strategy as it has been developed by the Government of Alberta over the course of the last three years. I think, by presenting it here in the Legislature in October of "74", it will provide all members and the citizens with a better opportunity to see the directions in which we are going, the reasons for many of our policy decisions, the reasons for our concern about the vulnerability of Alberta and what we hope to do about it in the years ahead.

Appendix B

APPENDIX B

MAJOR AND SELECTED ALBERTA ECONOMIC INITIATIVES 1971 TO JULY 1984

MAJOR AND SELECTED ALBERTA ECONOMIC INITIATIVES, 1971 TO 1984

Year	Initiative	Purpose	Impact
1972	Agriculture Development Corporation	– To help establish and maintain viable family farms and agribusinesses – To promote processing of agricultural products in Alberta – To strengthen Alberta's basic industry – To support decentralization and strengthen rural Alberta	Has been a positive factor in assisting agriculture in the past 12 years. 1971 Farm Cash Receipts: $ .795 billion 1983 Farm Cash Receipts: $3.73 billion ADC 1972/73 Capital Borrowings: $23 million ADC Cumulative Capital Borrowings to March 31, 1984: $887 million Average Annual Growth: 35.4%
1972	Alberta Opportunity Company	– To encourage small business – To promote diversification – To encourage decentralization (emphasis on loans to small business outside of Edmonton and Calgary)	Decentralization: located in Ponoka AOC Initial Capitalization: $50 million Current Commitments: $181 million Average Annual Growth: 12.6% History: Since 1972, 3,234 loans for $354,785,000
1972	Significant highway/ roadway improvements and expansion begin	– To improve overall transportation facilities for economic growth and better access to markets	Roads in 1971: 85,363 miles Roads in 1983: 93,016 miles 1972 Transportation Budget: $86.7 million 1984 Budget: $635 million for construction and improvement Average Annual Growth: 18.3%
1972	New emphasis on marketing Alberta products and resources through International Trade Missions, and research	– To promote processing – To promote diversification of products and markets – To capitalize on natural advantages	1978 Exports: $4.6 billion 1982 Exports: $9.2 billion Average Annual Growth: 15% 1972 Budget: $554,000 1984 Budget: $5.4 million Average Annual Growth: 21%
1972	New Marketing Division in Department of Agriculture	– To capitalize on natural advantages – To promote processing – To strengthen a base industry – To promote diversification and decentralization	1972 Budget: $2.3 million 1984 Budget: $14.53 million Average Annual Growth: 13.7%

1972	Public hearings and ERCB investigation into the price of oil and gas in Alberta and royalty levels	– To achieve fair market value for natural resources and a fair return to the people of Alberta	Provincial Government Revenues From Minerals: 1971: $278 million 1983: $5.69 billion (preliminary) Average Annual Growth: 28%
1972	Exploratory Drilling Incentive System	– First of a series of initiatives to support a base industry and encourage investment	1971 Wells Drilled: 2,025 1983 Wells Drilled: 4,696 Average Annual Growth: 7.0% 1971 – Feet Drilled: 8.025 million 1983 – Feet Drilled: 18.891 million Average Annual Growth: 8.8%
1972	Alberta Housing Corporation	– To provide capital for Albertans' housing needs generally, and to specific groups such as seniors, low-income families, and young people	Initial Capitalization: $112 million Current commitments and authorizations represent an investment of over $1.2 billion in housing for Albertans 32,000 dwelling units have been initiated through the corporation
1973	Urban Transportation Assistance	– To assist urban centers in renewing and developing modern road and rapid transit infrastructure	Over $1.1 billion invested and committed since 1973
1973	Mines Minerals Act & Petroleum Marketing Act (gave province greater control over price of Alberta oil and gas resources)	– To capitalize on natural advantages – To achieve fair market value for natural resources and at the same time encourage production	Value of mineral production 1971: $1.640 billion 1983: $22.218 billion Average Annual Growth Rate: 24%
1973	Oil Sands Development Policy; Syncrude Agreement with Provincial Participation	– To diversify into non-conventional oil activity – Build on natural strengths by extending the life of Alberta's oil supply	1971 Synthetic Oil Production: 15,424,000 barrels 1983 Synthetic Oil Production: 58,257,000 barrels Average Annual Growth: 12%
1973	Establishment of the Alberta Energy Company	– To allow individual Albertans to participate in the Syncrude and other new energy developments	Assets 1976: $216.4 million Assets 1983: $1.613 billion Average Annual Growth: 33%
1974	Natural Gas Rebate Program	– To keep the energy cost advantage for Albertans	From 1974 to date over $930 million paid out to Albertans
1974	New Oil Royalty Structure New Oil Pricing Agreement	– To provide a fair return to Albertans for natural resources while encouraging development of the petroleum industry	Value of oil production: 1971: $1.210 billion 1983: $14.493 billion

Year	Initiative	Purpose	Impact
1974	AOSTRA (Alberta Oil Sands Technology and Research Authority)	– To develop world class technology to assist diversification – To develop new methods to extract oil from oil sands and enhance the value of the resource	Initial Capitalization: $100 million Investment in oil sands and heavy oil field facilities, research and development to year end 1983 totalled approximately $1 billion Annual growth: 33% Resulting in new and more efficient extraction methods being developed A core of world class scientists and technology has made Alberta a world leader in oil sands extraction and recovery technology, equipment and research
1974	Major Renewal and Expansion of Irrigation	– To strengthen base industry – To encourage balanced economic growth – To diversify agricultural products and processing opportunities	1971 Irrigated Acres: 695,591 1983 Irrigated Acres: 1,109,429 Average Annual Growth: 3.8% Total of $300.2 million (estimated) spent to March 31, 84
1974	Purchase of Pacific Western Airlines	– To ensure Alberta based carrier to meet the air transportation needs of Albertans and promote Alberta as gateway to the north	Privatized in 1984. Remains based in Western Canada 1974 Assets: $80 million 1983 Assets: $546.3 million Average Annual Growth: 24%
1974	Statement on Petrochemical Developments Industrial Development Permits	– To encourage diversification and build on our strengths – To encourage orderly growth by coordinating government approval of major projects	Petrochemical Projects Completed and in Progress to 1971: $.389 billion 1971 – Current: $4.628 billion
1975	Forest Industry Support Program	– To maintain a base industry by assisting lumber producers during an unexpectedly low price period	$9.035 million in low interest loans Value of lumber production: 1971/72: $44.264 million 1983/84: $304.229 million Average Annual Growth: 17.4%

1975	Department of Business Development and Tourism established (now Tourism and Small Business)	– To encourage small business – To promote tourism as major opportunity for diversification	1971 Estimated Tourism Receipts: $374.2 million 1982 Estimated Tourism Receipts: $1.945 billion Average Annual Growth: 16.2% Private and Public Investment: 1971: $2.718 billion 1983: $18.341 billion Average Annual Growth: 17.2%
1975	Loan Guarantees for Alberta Publishers ($250,000 maximum per business)	– To encourage diversification	Value of Printing, Publishing & Allied Products 1971: $69 million 1983: $448.9 million Average Annual Growth: 32%
1975	Royalty Tax Credit	– To strengthen a base industry by providing a tax credit for crown royalties	In 1984-85, credits will reach an estimated $288 million
1975	Cow-Calf Loan Program	– To strengthen a base industry by shielding cow-calf producers from high interest costs and to prevent industry population loss	To 1977, almost $8 million in interest subsidies
1975	Cultural and Recreational Facility Development Program	– To assist communities in developing recreational and cultural facilities	Total Expenditures: $213 million over 10 years
1976	Heritage Savings Trust Fund	– To invest in projects of long term economic or social benefits – To invest a portion of non-renewable resource revenue for use as a savings fund and provide a supplementary source of income for the province.	1977: $2.2 billion 1984: $13.7 billion Capital Projects Division 1977: $36 million 1984: $2,135 million Canada Investment Division 1977: $50 million 1984: $1,896 million Alberta Investment Division 1977: $704 million 1984: $8,079 million

Year	Initiative	Purpose	Impact
1976	International Marketing Division in Alberta Agriculture	– To diversify agricultural markets by assisting the international marketing of agriculture and food products	Sales influenced: 1980: $267 million 1981: $300 million 1982: $322 million In 1983, 113 incoming and 89 outgoing agricultural sales missions
1976	Nutritive Processing Agreement (Federal-Provincial Initiative)	– To promote diversification through provision of capital for food processing infrastructure – To encourage balanced growth	Employment: 1,200 jobs created to 1983 2,000 currently under application Ripple Effects: Employment multipliers varying from 1.6 (Bakeries) to 5.1 (Slaughterhouse) Nutritive Processing Agreement Budget: Phase I, 1975 – 1981 $17 million spent Phase II, 1981 to year end 1984 – $28 million allocated Total Commitments to date: $45 million
1976	Apprenticeship Training Programs	– To meet manpower needs for economic development	Registered Apprentices: 1971: 8,716 1983: 24,188 Average Annual Growth: 8.8% No. of Designated Apprenticeship Programs 1971: 35 1983: 48 No. of Institutions Offering Apprenticeship Training 1971: 4 1983: 12 Apprenticeship and Trade Certification Division Expenditures 1971: $1.2 million 1983: $7.1 million Average Annual Growth: 15.9% New Apprentices Indentured: 1971: 2,760 1983: 4,486 Average Annual Growth: 4.5%

1976	Alberta Home Mortgage Corporation	– To increase supply and affordability of housing	72,000 housing units financed to date with $2.7 billion in outstanding loans
1976	Airport Construction and Improvement	– To encourage balanced growth	1971 Aircraft Movements: 335,599 * 1982 Aircraft Movements: 463 455 * Average Annual Growth: 3% Over $97.3 million invested 1976-1984 in new or improved airport infrastructure * excludes movements from Calgary and Edmonton airports
1976	Cow-Calf Subsidy Program	– To strengthen a base industry by maintaining herd populations through a period of price downturn	$41.9 million provided to cow-calf industry
1977	Market Development Assistance Program	– To assist Alberta companies with domestic and export market development through cost sharing	1977 Grants: $194,752 1983-84 Grants: $300,000 Average Annual Growth: 7.5% Applications Accepted and in Progress 1977: 47 1983 – 84: 153 Average Annual Growth: 21.7%
1977	Alberta Industrial Land Program – assistance to small urban communities for industrial land banks	– To promote balanced growth	Commitments to date of $37,000,000 in over 40 municipalities
1978	Farm Fuel Distribution Allowance	– To aid agriculture by offsetting the cost of fuel	Average $1,100 savings in fuel purchase price to each eligible user in 1982-83
1978	Farming for the Future	– To further Alberta's lead in agriculture research and research application – To build on agricultural strengths	199 research projects undertaken 63 farm demonstration projects, 37 graduate student programs – development of new grain varieties – ratio of estimated returns to farmers to research expenditures: 7:1 estimated Impact: $210 million $25 million allocated to 1984. Program extended to 1987

Year	Initiative	Purpose	Impact
1978	Kananaskis Country	– To expand tourist potential and provide recreation opportunities especially for Albertans wanting to travel in their own province	Gate Admissions 1979: 11,293 Gate Admissions 1982: 30,067 Average Annual Growth: 38% Total Expenditures to March 1983: $161.7 million
1979	Alberta Small Business Tax Reduction from 11% to 5% for qualifying small businesses	– To create a positive climate for investment – To encourage small business	$100 million estimated for 1985 taxation year
1979	Minister of State for International Trade – Economic Development appointed	– To encourage diversification of products and markets – To build on natural strengths by improved marketing	1979 Budget: $1.8 million 1984 Budget: $5.4 million *Outgoing Missions and Trade Show Participation* 1979: 57 1983: 94 Average Annual Growth: 13.3% *Estimated Value of Sales Assisted by Missions and Expositions* 1979: $49 million 1983: $177 million Average Annual Growth: 37.9% *Incoming Missions* 1979: 22 1983: 179 Average Annual Growth: 68.9% *Exports* 1978: $4.6 Billion 1983: $9.2 Billion Average Annual Growth: 15%
1979	Feed Freight Assistance	– To support a base industry by assisting livestock producers in dry regions with feed transport cost	Over $6.4 million provided
1979	Department of Economic Development established	– To implement Alberta's economic strategy	Has provided support for new economic activities, encouraged investment of overseas risk capital in Alberta, reduced trade barriers to Alberta exports and expanded foreign markets for Alberta products.

1979	Municipal Water Supply and Sewage Treatment Grant Program and Regional Utilities Program	– To support balanced economic growth	Grant Program: $432 million spent 1979-84 Regional Utilities Program: $140 million spent 1979-84
1979	Canola Oil Tank Car Lease Program	– To offset transport cost disparities between raw and processed canola	$5.8 million from 1979 to March 1984
1979	Alberta Heritage Foundation for Medical Research	– To encourage research and development activity in the medical field on a permanent basis	As of March 31, 1983, $100 million was transferred to the Foundation. Operates from income generated by the $300 million Alberta Heritage Foundation for Medical Research Endowment Fund
1979	Investment in Prince Rupert Grain Terminal — will assist farmers in grain delivery activities	– To strengthen Alberta's agricultural industry by improving transportation – To build on natural advantage by expanding capacity for grain exports	Approximately $240 million financing commitment by Alberta Heritage Savings Trust Fund and General Revenue Fund will increase Pacific Coast grain export potential by 20% and provide a second major port outlet on the West Coast
1979	Purchase of Canadian Government Grain Elevators Edmonton, Calgary and Lethbridge	– To strengthen a base industry by improving transportation – To build on natural advantages by facilitating grading, storage and movement of grain	$17.5 million investment will ensure major modern inland terminal efficiency and capacity
1979	Pine Ridge Forest Nursery	– To provide seedlings to ensure productive forest lands for future timber productions	Seedling shipments: 1979-1980: 10.435 million (first year of full operation) 1981-1982: 14.81 million (facility expansion) 1984-1985: 28 million (estimate) Cumulative investment to completion 1984-1985: $14.6 million
1979	Product Development Program	– To encourage diversification – To support small business by providing front-end financial support to Alberta businesses developing new products	Approximately 40 products developed by Alberta business with assistance from this program

Year	Initiative	Purpose	Impact
1980	Public Grazing Land Improvement Program	– To strengthen a base industry — agriculture — by expanding available land and increasing efficiency	60,500 acres, 245 miles of fences, and 368 dugouts have been developed under the program $40 million invested over 10 years
1980	Purchase of 1000 Grain Hopper Cars	– To strengthen Alberta's agricultural industry – To build on natural advantages – Increases the volume, ease and efficiency of transporting grain	$53.77 million investment from the Alberta Heritage Savings Trust Fund
1980	Resource Roads Program	– To build on natural advantages by by improving transportation – To promote balanced growth – Increases the capacity of goods movements in heavy industry	$200 million of new construction since 1980
1980	Pavement Resurfacing and Rehabilitation Program	– To improve transportation – To promote balanced growth	Over 1,500 miles of primary and secondary highways were upgraded in 1982-83 Cumulative to 1983: $100 million expenditure
1980	Alberta Location Program	– To assist rural communities in attracting industry and business for the promotion of balanced growth	Since 1980, 42 applications have been approved
1980	New Foreign Offices established: Hong Kong 1980 Houston 1981 New York 1982 in addition to previously established offices	– To attract new investment – To expand tourism – To diversify markets	Foreign offices have helped in promoting export sales Alberta Exports 1978: $4.6 billion Alberta Exports 1983: $9.2 billion Average Annual Growth: 15%
1980	Alberta Rental Investment Incentive Program	– To stimulate construction of rental housing units through provision of tax credit or grant	34,000 rental housing unit starts
1980 & 1981	Emergency Stop-Loss Hog Program	– To maintain a base industry by assisting hog producers during an unexpectedly low price period	$28.25 million provided to 1982

1981	Alberta Motion Picture Development Corporation established	– To encourage diversification by assisting entrepreneurs at the pre-production and initiation stages	$3.0 million revolving fund Assisting 22 motion pictures, television series, and documentaries, currently in development representing over $75 million in production budgets
1981	Alberta Petroleum Incentive Program	– To encourage investment – To build on strengths	Cumulative incentives to 1983 year-end: $770.8 million
1981	Timber Salvage Incentive Program	– To maintain a base industry by assisting lumber producers during a period of difficult markets	Program expenditures: 1981-83: $16.803 million Volume of timber salvaged: 491.107 fbm
1981	Beef Cattle and Sheep Support Program	– To support a base industry during cyclical downturn	$141.5 million provided
1981	Business Assistance for Native Albertans Corporation	– To provide managerial and business advice to native businesses in Alberta	Approximately $500,000 annually for operations Has served about 450 potential clients since June 1981
1981	Historical Facility Developments	– To stimulate local and provincial tourist opportunities through the decentralized development of historic sites in rural areas	Capital expenditures in rural areas and communities totalling $73 million
1981	Alberta Food Processing Development Centre	– To promote agriculture processing by assisting industry with assessment and development of innovative processes and products – To encourage balanced growth	Total amount invested thus far: $8.6 million
1981	Economic Stabilization Plan – To stimulate highway and road improvements in rural districts	– To encourage balanced growth	$20 million in 1981 $20 million in 1982 $10 million extension in 1983 $50 million total expenditure resulted in 1,600 miles of road improvement
1982	Alberta Oil and Gas Activity Plan	– To stimulate Alberta's conventional oil and natural gas industry – First element of Economic Resurgence Plan	$5.4 billion in royalty relief to be used to encourage oil and gas development

Year	Initiative	Purpose	Impact
1982	Native Venture Capital Company Limited	– To encourage native entrepreneurs to capitalize on economic opportunities	Up to $10 million capitalization with up to $5 million from private sector and $5 million from province About $600,000 currently committed generating active investment of $1.3 million
1982	Vencap Equities Alberta	– To provide a source of equity capital to eligible businesses	$200 million loan from Alberta Heritage Savings Trust Fund $44 million from Alberta investors
1982	Seniors Home Improvement Program	– Prove financial assistance to low and moderate income senior citizen homeowners to repair and improve their homes	47,128 applications approved for value of $133,117,000 An average of 3,000 jobs per year created by the program
1982	Economic Resurgence Plan	– To increase investment and to strengthen the economic climate	Components 1982-1985: Heritage Fund Mortgage Interest Reduction Program $218 million — 157,000 homeowners Heritage Fund Small Business and Farm Interest Shielding Program $73.7 million — 21,939 farmers 23,119 businesses Farm Fuel Distribution Allowance Enrichment $130.8 million Primary Agricultural Producers' Natural Gas Price Protection Plan $5.8 million Highway Winter Works and 1982 Fall Roadwork Extension $45.6 million Truck Licence Fee Reduction Program $33.5 million Advanced Education Extra Enrollment Funding $30.1 million Well Servicing and Development Drilling Grants $350.6 million Royalty Tax Credit Enrichment $1.2 billion Extension of Natural Gas Royalty Holidays $45.0 million Total: $2.136 billion

1982	Establishment of the Electric Energy Marketing Agency	– To reflect equalized electric energy rates for different customers province-wide – To encourage balanced growth	Total Shielding to March 1984: $109,948,490
1982	Alberta Pork Producers Market Insurance Program	– To strengthen a base industry by providing a self directed and supported market insurance program for hog producers	$10 million grant to initiate program
1982	Canola Crushers Financial Assistance Program	– To provide a stop loss program and maintain long term viability of the Alberta canola crushing industry	$20.2 million paid out
1982	Northern Drought Disaster Crop Advance Assistance	– To maintain a base industry through assistance for producers, primarily in the Peace River area, following three unfavourable production seasons	$17.4 million in support to over 2,700 producers
1982	Small Business Tax Installment Waiver	– To assist small business by improving cash flow and decreasing paperwork	$6 million annual saving to small business
1983	Electronic Products Test Centre established	– To promote research and development for diversification	$10 million budgeted to help the Electrical Products Industry which has already proved to be a growth industry: Value of Shipments 1971: $31 million Value of Shipments 1983: $158 million Average Annual Growth: 14.5%
1983	Establishment of Centre for Frontier Research	– To encourage specialized research and development in cold regions products – To capitalize on natural advantages	$376,000/year for 5 years Total 1983-1988: $1.88 million
1984	Small Business Equity Corporation	– To stimulate the formation of pools of equity by providing investment capital for small business	$15 million budgeted for a four year program
1984	Alberta Research Council	– To encourage research and diversification spinoffs	$21 million granted for high technology research Funding 1972: $1.1 million Funding 1984: $21 million Average Annual Growth: 28.0%

Year	Initiative	Purpose	Impact
1984	Job Creation and Manpower Training	– To meet manpower needs of economic development	$78 million budgeted for program
1984	Walter C. Mackenzie Health Sciences Centre – Phase II	– Centre commenced in 1974. Phase II will expand facilities for world scale research and training – To improve the quality of health care	Combined with the Heritage Foundation for Medical Research, the Centre will help to create the critical mass of scientists required to develop a health sciences research and application component of benefit to the health and economy of Albertans
1984	Capital Improvements to Highways	– To support industry through improved transportation – a renewal of earlier commitments	1972 Budget: $86.7 million 1984 budget: $635 million
1984	Loan Guarantee Program	– To assist Alberta exporters of goods to diversify markets for products shipped outside Alberta's borders	$50 million pilot program
1984	Economic and Regional Development Agreement signed with Federal Government	– Provides for joint planning and joint action in pursuing the economic and regional development priorities of Alberta	Initial activities include: – $23 million forestry assistance program – Coordination of agriculture and food production initiatives – Coordination of tourism development – Coordination of science and technology assistance – Review of transportation policy and needs
1984	Student Financial Assistance Program	– Expanded funding to assist the further education of Alberta students, improving their prospects in the years ahead	– 42,000 students assisted in 1984-85 compared to 29,000 in 1982-83 – In 1984-85, the budget for student financial aid more than doubled to $64 million.

Appendix C

APPENDIX C

EXCERPTS FROM SCIENCE AND TECHNOLOGY DEVELOPMENT IN ALBERTA PROPOSAL

MAY, 1984

PART ONE

SCIENCE AND TECHNOLOGY IN ALBERTA'S FUTURE

A. PERSPECTIVE

A major goal of our society is to improve our quality of life. This implies improved health, a supportive environment and a stimulating and satisfying social and cultural setting in which to live. These goals can be achieved only if Alberta has a strong economy. It now appears likely that of the conceivable alternatives the widespread and continuing adoption of new technology is key to future economic growth.

Alberta's economy has relied on the development of natural resources (i.e. conventional crude oil, natural gas, agriculture and forestry). These sectors will continue to predominate in importance for the coming decade. But over the next ten to twenty years conventional crude oil will decline in importance as the remaining supplies diminish, and heavy fossil fuels from sources such as heavy oil, oil sands and coal deposits will increase in importance. The renewable resources represented by the forestry and agricultural sectors will expand and continue to represent major mainstays to the economy.

With this outlook, improvements to the economy will rely on technology and science, and the application of technology to our natural resources will become paramount. The heavy fossil fuels cannot be developed without advanced technologies and cannot be marketed in their raw form; opportunities exist for upgrading these into products of much higher value than those produced in Alberta today. Similar technical advances in forestry and agriculture will enable the production of high value commodities for domestic and export markets.

Moreover, many opportunities exist for undertaking developments in the new technologies. In some cases, these represent spin-offs from the technologies of the resource industries. In other cases, opportunities in frontier sciences are being identified by the large and growing scientific and research community in Alberta. These opportunities should be pursued aggressively, and although initially they may not represent large sources of revenue, they will provide exciting job activities for Albertans, and will provide the basis for expansion of the economy into new and productive areas.

Thus research and science will have two major contributions to Alberta's economy. The first is the maintenance of revenue through the upgrading of our huge natural resources to higher valued products. The second is the expansion of our economic activity into new areas of technology in the expectation that job opportunities will be enriched and that the social and human environment in Alberta will be improved.

B. ALBERTA'S FUTURE

1.1 ALBERTA'S ECONOMY

Today, Alberta's economy depends heavily on the extraction of depleting natural resources, mainly natural gas and conventional crude oil. Thus, in 1981, the province derived almost two-thirds of its net value from these sources and from directly related construction and manufacturing activity. In this connection the life index of Alberta's natural gas is 27 years, and that of Alberta's conventional crude oil is 12 years.

However, the situation with the heavy fossil fuels, such as heavy oil, oil sands and coal, is quite different. These resources have life indices measured in the hundreds of years. In the past, the development of such resources has not been economical due to abundant cheap conventional crude oil, and also due to the lack of technology for their extraction and upgrading.

The remaining one-third of Alberta's net value of production is essentially provided by agriculture, manufacturing and construction.

The dollar value of agricultural net value of production increased 5.9 times in as-spent dollars in the period from 1971 to 1981 for example. In 1981 the agricultural sector directly employed 87,000 persons.

The dollar value (in as-spent dollars) of the manufacturing sector's net value of production increased 5.5 times from 1971 to 1981. In 1981 the manufacturing sector directly employed over 100,000 persons; however, total employment fell by approximately one-fifth during 1982.

Overall expansion of agricultural and manufacturing activity substantially exceeded inflation between 1971 and 1981.

While construction often makes a very substantial contribution to Alberta's net value of production, it is even more dependent on other sectors of the economy, than are oil and gas, agriculture and manufacturing. Hence, construction provides a somewhat less reliable source of value added than do the other sectors.

1.2 THE ROLE OF SCIENCE AND TECHNOLOGY IN ALBERTA'S FUTURE

When alternatives for realizing a viable economic future for Alberta are examined, these are the major possibilities:

1) Development of heavy fossil fuels as sources of energy and high value chemical products;
2) Expansion and diversification of Alberta's agricultural and forestry base; and
3) Diversification of manufacturing activity, especially into areas of the new technologies.

It is significant that for realization of all three, the exploitation of scientific research and development is crucial. Research, science and technological development are therefore key to Alberta's future economic viability. They can provide the engine for the maintenance and future growth of the economy, to an extent not possible with other conceivable alternatives.

Consequently, it is essential that Alberta maintain a healthy program of scientific and engineering research, to be subsequently developed into technology and directed to enhance the province's economic and social development and improve the quality of life.

It is recognized that in a time of financial restraint such a program will require substantial courage, but it must be noted that an industrial society which cuts back on its research and development during economic recession is akin to an agricultural community that eats its seed grain during periods of drought.

1.3 STATISTICAL INDICATORS

The quantitative aspects of Canada's and Alberta's research and science activities can be summarized as follows:

a) in 1979 Canada ranked seventh in the world (behind the U.S.A., Japan, West Germany, France, the United Kingdom and Italy) in its expenditure (i.e. $U.S. 2.5 billion) on research and development;

b) in 1979 Canada ranked eleventh (at 1.1%) in the proportion of its gross domestic product spent on research and development (behind U.S.A., Switzerland, West Germany, Japan, the United Kingdom, the Netherlands, Sweden, France, Belgium and Norway);

c) in 1980, 0.80% of Alberta's gross provincial product was devoted to research and development (behind Ontario, Quebec and Atlantic Canada). However, by 1981-82, 1.10% of Alberta's gross provincial product was spent on research;

d) within Canada Alberta ranked:

- fifth in value added by manufacturing industry per capita;
- second in industrial research and development expenditures per employee;
- fifth in "graduate student index";
- sixth in sponsored research in universities per capita; and
- fourth in federal science procurement contracts by province.

1.4 NEED FOR A SCIENCE AND RESEARCH POLICY STATEMENT

It is clear that the province is now in a period of budgetary restraint, and it is even more important that Alberta's research and science activities are marshalled to optimally assist in the province's development.

Hence, this Policy Statement provides a framework for determining priorities in research and science and for allocating funds against these activities.

1.5 STATEMENT OF POLICY AND OBJECTIVES

The substantial expenditures on research and science, undertaken by the Provincial Government, are justifiable because they have the potential to lead to a more viable economy, an improved social milieu and an enhanced quality of life for all Albertans in the future.

Hence, the objectives of the Alberta Government's research and science activities are to:

1. Support and promote the development of new technology that will maintain and enhance the productivity of existing economic activities;

2. Support and promote the development of new knowledge-based economic activities;
3. Support and encourage the development of human resources through new technologies and scientific discoveries, and by developing a better understanding of the interactions between society, science and technology;
4. Contribute to the advancement of scientific knowledge;
5. Develop the scientific base required to support health, environmental and other acts and regulations; and to
6. Develop and maintain skilled manpower within the province in order to provide an adequate level of scientific and technical services.

In meeting these objectives, optimum use will be made of the science and technology which is available from sources outside the province.

1.6 IMPLEMENTATION

To establish policy and to administer its research and science activities the government has created:

- the Special Cabinet Committee on Research and Science Policy;
- the Research and Science Advisory Committee with its attendant Office of Science and Technology; and
- individual research-performing and funding departments and agencies.

The Special Cabinet Committee is responsible for setting research priorities, recommending total funding levels, setting guidelines to allocate funds, establishing a research and science policy, and ensuring that its policies are carried out. The Advisory Committee supports the Special Cabinet Committee by preparing material for consideration, reviewing ex-house proposals on research and science, and initiating independent proposals. The Office of Science and Technology, in its turn, serves the needs of the Advisory Committee.

A very important feature of research and science in the Alberta Government is that each department and agency is responsible and accountable for its own research projects as defined by its individual Act and Regulations.

In addition to the duties noted, it is anticipated that the Special Cabinet Committee on Research and Science Policy, and the Research and Science Advisory Committee will play a major role in those situations where new or proposed initiatives in research and science do not fit clearly into the mandate of existing departments and agencies.

1.7 SOME RECENT RESEARCH AND SCIENCE POLICY INITIATIVES OF THE ALBERTA GOVERNMENT

The current research and science activities of the Government may be visualized as having two components. One is the ongoing research and science activity of the various departments, agencies and the universities. The other is the result of new research and science policy initiatives. The combination of these has resulted in a total scientific expenditure for the Government of Alberta for 1981-82 of $237 million.

Some examples of the new research and science policy initiatives are:

Economy Related

- adoption of the Long Range Plan of the Alberta Research Council in 1979, the four major thrusts being expansion of research on oil sands and heavy oils, expansion of research on coal, further development of services to industry and the seeking of new ways to work with industry, and focusing effort in those frontiers of science which are likely to be of long-term economic benefit;
- commencement of construction of a new $77 million Alberta Research Council laboratory immediately to the south of the Edmonton Research and Development Park;
- creation of Chembiomed, as a wholly owned subsidiary of the University of Alberta to develop, manufacture and sell antigens;
- creation of the Product Development Program in Economic Development ($250,000 per year);
- creation of Vencap Equities Alberta Ltd. in 1982 to commence operations in 1983-84 using $200 million from the Alberta Heritage Savings Trust Fund;
- creation of Alta-Can Telecom Inc. as a wholly owned venture capital subsidiary of Alberta Government Telephones, in 1982; and
- creation of the Alberta Research Council joint venture research program with industry in 1983 (up to $1.5 million in 1983 as ARC share with up to five private sector participants).

Energy Related

- creation of the Alberta Oil Sands Technology and Research Authority in 1975 to undertake pure and applied research on bitumen and heavy oil recovery and processing ($343.7 million committed to 1984-85);
- creation of the Conventional Oil Enhanced Recovery Program in 1980-81 to be administered by the Alberta Oil Sands Technology and Research Authority ($75 million committed to 1984-85); and
- the Alberta/Canada Energy Resources Research Fund and the investments resulting therefrom (i.e. Coal Mining Research Centre, Computer Modelling Group and coal and renewable energy programs at the Alberta Research Council) where $96 million was allocated in a program commencing in 1976.

Environment Related

- construction of the Alberta Environmental Centre at Vegreville (commenced 1977) at a cost of $28 million (exclusive of laboratory equipment);
- the land reclamation program which commenced in 1976-77 and is to be concluded in 1986-87 (approximately $3.2 million was spent on research to December 31, 1982); and
- the weather modification program which commenced in 1973 and on which $22.5 million was spent to March 31, 1983.

Medical Related

- The Alberta Heritage Foundation for Medical Research Endowment Fund commenced in 1979-80, for which a $300 million endowment fund was created, the interest from which is distributed through the Alberta Heritage Foundation for Medical Research;

- the Applied Cancer Research program commenced in 1976-77 and is to be concluded March 31, 1987 (with a total funding allocation of $34.3 million);
- the Applied Heart Disease Research program commenced in 1976-77 and was concluded in 1981-82 having spent $29.3 million;
- The Occupational Health and Safety, Research and Education program was started in 1981-82 and will run to 1988-89 with a commitment of $10 million ($0.98 million was spent to December 31, 1982); and
- The Alberta Foundation for Nursing Research Fund was set up in 1983 to provide $200,000 per year for five years to help nurses undertake research on the clinical component of nursing.

Renewable Resources Related

- construction of the Food Processing Centre near Leduc for $8.5 million (to be completed in 1984);
- creation of the Farming for the Future Program in 1978-79, with an average annual expenditure of $5 million;
- creation of the Maintaining our Forest Program in 1979-80 to be concluded in 1985-86 (approximately $3.3 million was spent on research to December 31, 1982);
- financial participation since 1976 in the Prairie Agricultural Machinery Institute which has facilities in Portage la Prairie, Humboldt and Medicine Hat; and
- financial participation in the Veterinary Infectious Diseases Organization located at Saskatoon.

C. CONCLUSIONS

1.8 SUMMARY

1. **ALTHOUGH ALBERTA HAS A STRONG BASE IN CERTAIN SCIENCE AND TECHNOLOGY ACTIVITIES ITS COMPETITORS IN INTERNATIONAL TRADE ARE EVEN MORE RESEARCH INTENSIVE**

Areas of technological strength have resulted from a number of major Alberta Government initiatives in key sectors of the economy, and collectively constitute Alberta's strategy in research and development. This strategy has led to world leadership in selected areas of agriculture, natural resources, and medicine. However, Alberta's overall investment in research and science, expressed as a percentage of gross domestic product in 1980, lagged behind Ontario, Quebec, and the Maritimes. More recent figures indicate that this gap may have been partially closed.

2. **CANADA IS GENERALLY WEAK IN ITS ABILITY TO TRANSFER RESEARCH RESULTS FROM THE LABORATORY TO THE MARKETPLACE**

To some extent this problem has been addressed in Alberta through the programs of Alberta Agriculture and the Alberta Oil Sands Technology and Research Authority. However, analogous mechanisms in the medical, manufacturing, and technologically intensive services are lacking.

1.9 RECOMMENDATIONS

1. A DUAL SCIENCE STRATEGY IS NEEDED

Alberta's business, academic and government institutions are giving intensive study to diversification into high technology areas due to concern over continued reliance on revenues from Alberta's traditional resource industries. Based on evidence available to date, it seems unlikely that markets for Alberta's high technology products can be opened quickly enough to allow Alberta to completely remold its economic base. In fact, the progress being made in developing Alberta's oil sand, heavy oil and coal resources, suggests that a dual objective for Alberta's science and technology activities would be appropriate:

(i) to develop and apply advanced technology for upgrading Alberta's traditional resource based industries; and

(ii) to engage in high technology opportunities, that are identified by the private sectorand encouraged, where appropriate, by joint industry/government initiatives. These opportunities in some cases will represent spin-offs from activities of the resource industries and in other cases will arise from advances and discoveries made by Alberta's growing population of trained scientists and engineers.

2. IMPROVED MECHANISMS ARE NEEDED IN ALBERTA TO ESTABLISH RESEARCH AND DEVELOPMENT PRIORITIES AND LEVEL OF EFFORT

Investment in research and technology will have to increase significantly over existing levels in several critical areas to accomplish the dual strategy referred to above. In view of budgetary restraints, considerable effort will be needed to choose the appropriate priorities and objectives. Alberta lacks at present an effective method to establish either the total level of its effort, or to define the priorities for an expanded effort. A formal mechanism for providing this coordination has been established, through the creation of the Cabinet Committee on Research and Science Policy which is supported by its Advisory Committee and the Office of Science and Technology. This structure cannot be effective in fulfilling its mandate, until there is agreement by the public, private sector, universities and government on a comprehensive provincial science policy.

3. PUBLIC UNDERSTANDING AND SUPPORT FOR RESEARCH AND DEVELOPMENT IS ESSENTIAL

To secure support for an expanded role for science and technology, it is important to convey to Albertans that the quality of life in the immediate and long-term future will be highly dependent on the economy. The public therefore must be brought into the debate on both the establishment of priorities and the funding levels.

PART TWO

COMMERCIALIZATION OF SCIENCE AND TECHNOLOGY IN ALBERTA

A PROPOSAL

prepared by
The Department of Economic Development

INTRODUCTION

High technology is fast becoming the world's leading export industry. Recognizing the limits of their rapidly depleting resources, countries are spending time and money on research and development, fueling a high-tech commitment that is revolutionizing day-to-day life and changing the way people work, think and communicate.

The challenge for Alberta, is how to participate fully in this new industrial revolution. It is vitally important that our industries are prepared to compete successfully in world markets by developing, adopting and applying leading-edge technologies.

Within this context, the Department of Economic Development has prepared the following proposal setting out some ideas and recommendations on how to encourage the province's private sector in the development commercialization of new technologies. We believe this strategy must be based on strengthening communication and technology transfer between industry, universities and our research institutions.

The paper concludes that the Government of Alberta can, by the application of appropriate policies, help to overcome many of the impediments to the natural growth of knowledge and technology-intensive industries. We believe that the most appropriate governmental role is to create a high technology environment, to provide needed stimuli and to fill the gaps in the system so that the private sector can create, develop and expand in a range of new economic activities.

2.1 THE SITUATION AS VIEWED TODAY

- The national deficit in technology intensive products is $8.2 billion per year (1982).
- Canada is being outstripped by most industrialized nations in technology development.
- The long-term effect on exports may be serious.
- Existing Alberta institutions do not adequately stimulate the commercialization of high technology developments. In the U.S.A. defense and space programs contribute to technology innovation causing beneficial spin-offs.

- Alberta lacks "patient" financing in the high risk area of product development prior to commercialization (partially addressed through the formation of Vencap Equities Alberta Ltd.).
- Alberta lacks the "tools" available in the mature provinces and states required to attract major company high technology developments.
- High technology assistance available to companies in Alberta is fragmented and can be difficult to access.
- Alberta has lost scientists due to the historical environment for funding research and development.

2.2 PRIVATE SECTOR AND UNIVERSITY ADVICE TO DATE

(March, 1984)

Concern regarding the current situation in science and technology development in Canada and Alberta led us to seek the advice of many distinguished individuals. Their comments are summarized below.

(a) Government Initiatives

- Government involvement should be pro-active and not reactive.
- A gap currently exists in development support between the concept/prototype stage of product development and the commercialization stage. The commercialization stage is where entities such as Vencap, banks and venture capital firms normally become involved.
- Any program of technology support should build on Alberta's strengths (i.e. resource development, agriculture and medical research) but should be sufficiently flexible that it can support good ideas in other sectors.

(b) Organization

- An organization to facilitate technology development is needed to provide the "**one window**" through which Alberta's high technology businesses receive advice and assistance from the Alberta Government.
- This organization should operate **at arms length from Government, directed by a private board.**
- This organization could be a modification of the existing Alberta Research Council. It **could also become the umbrella for all provincial research and development institutions.** It could be called the "**Alberta Technology Development Authority**".
- There should be clear objectives for such an 'Authority' and a mandate for ongoing review regarding continuation, change or discontinuation.

(c) Funding and Assistance

- Funding from the Government for technology development should be provided on the basis of sharing the cost with the private sector. A royalty or other payback provision suitable to the particular situations being supported should be provided for.
- Information on forefront technology programs should be available throughout Alberta.

- Assistance should be directed towards:
  a) Inventors
  b) Alberta companies developing forefront technology products and services
  c) Attraction of high technology companies outside of Alberta who may be encouraged to locate here to establish research and development facilities and produce new products
  d) Technology development institutions and product testing laboratories
  e) Attraction of 'magnet' type companies who through their activity will cause spin-off development
  f) Attraction of companies involved in "quantum leap" technology development
- There should be a recognition of the **difference in time and cost required to bring different types of technology to market**. For example, in the medical field it can take 10 years compared to only 2 - 3 years for many industrial high technology products. Therefore there is need for a suitable long-term approach.
- The Alberta Oil Sands Technology and Research Authority (AOSTRA) was **identified as having a sound basis** for providing funding. It offers the following features:
  a) Dedication of a fund to carry out a long-term plan not subject to annual budget appropriation fluctuations
  b) All aspects of the innovation process are included
  c) The private sector carries the major part of the program
  d) Universities are involved
  e) A method is provided whereby inventors can share in financial returns
  f) Commercial partners are involved at the front end
- Patent, copyright and licensing assistance is required.
- Assistance should be given to **enable market analysis** as this must be done prior to preparation of a business plan and before seeking funding.
- Financial and/or tax incentives are key considerations to high technology companies looking at Alberta as a possible site. Incentives of this type would **enhance Alberta's competitive position with other political jurisdictions** in Canada and elsewhere and should therefore be considered.
- Matching funding is recommended for consulting companies to develop high technology projects with individuals and companies.
- The approach taken by **Alberta Motion Picture Development Corporation** was also **favorably cited as a possible model**. This approach solved the problem voiced by many as to "who picks the winners" and the belief that this decision should not be a government responsibility.
  a) Corporation provides the business applicant up to 60% of funding to get the project to the commercialization stage;
  b) Funding is only committed by the Corporation after the private sector investor commits his 40%;
  c) Corporation is repaid its funding before the project goes commercial plus 15%.

- A junior stock exchange mechanism, such as the Alberta Stock Exchange with some changes, could be required to provide a source of capital for emerging companies. Procedures to qualify for listing need considerable simplification.

(d) Interrelationships with our Universities

- There is a need for improved technology transfer both between the universities and industry, and the Alberta Research Council and industry. Appraisal of inventions and patent assistance are also important considerations.
- A technology development organization for Alberta should have the flexibility, to financially support, or identify priorities to support, institutional development (particularly associated with the universities).
- A technology development strategy should encourage the attraction of a critical mass of scientific people to Alberta, which will help stimulate the growth of technology intensive industries.
- Technology development should be a joint effort between university, industry, labor and government. This effort should be carried out in a balanced way.
- Industry should exploit university ideas and capital facilities.
- Management training should be reinforced in our universities as an important element in developing managers who understand high technology development.
- Support is required to encourage the private sector to undertake high technology project contracts in universities. (Ontario has such a plan).
- Image building in Alberta is required to recruit leading high technology people from universities and private sector organizations outside Alberta.
- There is a need to strengthen private sector consulting by more directly involving consultants in university, government and Research Council projects. This should also serve to minimize duplication of activities between the private sector and government funded institutions.

2.3 RECOMMENDATIONS FOR TECHNOLOGY DEVELOPMENT IN ALBERTA

One of the proposals is that **a new Alberta Technology Development Authority be established to direct innovative programs of assistance that would stimulate high technology development within Alberta.** The organizational structure, role and funding policies proposed for the new Authority are summarized in the following paragraphs.

1. **Organization**

   (a) Create a **Technology Development Authority Board*** to oversee and coordinate all provincial government research and technology development activities in the province, with the possible exception of those funded through the Alberta Heritage Foundation for Medical Research, AOSTRA, the universities, and such other research that does not envision a commercial development as a final result. Moreover, the Board would also consider and advise the government on all aspects of science and technology development policy, and act as a forum for the consideration of priorities.

   (b) The Board would replace the existing Alberta Research Council Board.

*Hereafter called the Board

(c) The Board would be structured as follows:

(i) Chairman of the Board to be appointed by the government from the private sector.

(ii) 17 Member Board to be composed as follows:

- Minister of Economic Development or Alternate
- Minister of Advanced Education or Alternate
- Minister of Tourism and Small Business or Alternate
- Minister of Energy and Natural Resources or Alternate
- Vice President Research – University of Alberta
- Vice President Research – University of Calgary
- 11 Private Sector Members.

(iii) Board Members would be appointed for a three year term. Retiring Board Members would be eligible for reappointment at the discretion of the government.

2. **Objectives**

- The objectives of the proposed Board should be as follows:

(1) Develop financial support to effectively assist companies, individuals and initiatives from institutions in the commercialization of forefront technology.

(2) Develop vehicles for technology transfer between the Alberta Research Council, universities, research and development institutions and the private sector.

(3) Align Alberta Government commercial related research and science activities with provincial economic strategies and private sector requirements. Emphasis will be given to developing advanced technology in our traditional resource based industries including oil, gas, coal, forestry and agriculture. Additionally, it will include the development of those other opportunities identified by the private sector and our institutions.

(4) Provide a "one window" approach for industry as previously outlined.

(5) Identify and assist as appropriate desirable institutional developments required as building blocks for technology development, e.g.,

- Bio-technology Centre
- Centres for Engineering Research
- Fifth Generation Computers
- Specific people skills training

(6) Provide a capability to do feasibility analyses for major projects, and priorize likelihood of private sector involvement, such as:

- Long Base Array
- Microchip Design and Manufacturing.

3. **Funding Policy**

- The recommended key elements of the funding policy would include but would not necessarily be restricted to:

  (a) Adopting a cost/risk shared approach to encourage technology development in the private sector.

  (b) Structuring a Funding Committee of the Board that would make most decisions on project funding. Major decisions (on a basis to be defined) would be made by the Board.

  (c) Funding of smaller projects would be streamlined so that quick response could be provided and based on the use of common criteria.

  (d) Minimizing decision time for reply to requests for assistance.

  (e) Making provision for recovery of government funds advanced, upon successful commercialization of the technology.

  (f) Providing assistance for the transfer of university and research institution science and technology to the private sector, when the interests of those involved are best advanced by such a transfer.

  (g) Proposing a commitment of funds over an extended period to ensure completion of the project, in recognition of the fact that technology development is an ongoing, often long-term process.

  (h) Funding for consulting companies to develop high technology projects with individuals and companies. Consulting companies would be encouraged to bring such projects to the Innovation Centre.

  (i) Recognition would be provided for the different funding requirements of different types of technology.

4. **Funding Implementation Guidelines**

  (a) The funding implementation guidelines are proposed to be as follows:

  - The Board could make the decisions on all proposals within prescribed guidelines.

  - Technology commercialization would be encouraged in Alberta unless otherwise agreed to by the Board.

  - Development technology would be jointly owned by the Board and proponent(s) until financing is fully repaid whenever practical.

  (b) Funding could be provided for:

  - Feasibility Contracts – up to 100% of contract cost to determine feasibility of proceeding with a particular initiative, e.g., an electronic product test facility in Alberta.

  - Inventor contracts – for prototype development, product development and design.

  - Assisting existing Alberta companies in the development of forefront technology projects.

- Start-up funding to establish institutional 'building blocks.'
- Technology transfer between universities, private sector and government.
- Communications of Science and Technology Development Program to Albertans.
- Attraction of "magnet" research and development companies which have significant spin-off potential.
- Assistance in attracting a critical mass of highly trained people in university and industry.
- Business management training related to high technology development and international marketing.
- Operational costs of Alberta Innovation Centre.

2.4 RECOMMENDATIONS FOR THE ALBERTA INNOVATION CENTRE

1. The Technology Development Authority Board will immediately create an Alberta Innovation Centre and incorporate it with the Alberta Research Council.
2. The functions of the Alberta Innovation Centre, as a part of the Alberta Research Council, may include the provision of assistance in the areas of:
   - product and process development, implementation commercialization
   - patents
   - product and process information
   - licensing
   - copyrighting
   - industrial engineering support
   - program support (application assistance)
   - business plan preparation
   - incubator facilities
   - technology transfer mechanisms (universities, business, government)
   - contracts (university, private consultants, Alberta Research Council).
3. The Alberta Innovation Centre activities would include support to:
   - inventors
   - Alberta companies developing high technology products and services
   - attract "out of province" high technology companies
   - assist in formation of technology development institutions
   - undertake contracts with the private sector and government to assess feasibility of high technology projects.
4. The Alberta Innovation Centre would have offices located in such a manner as to maximize province wide access.

POOR

QUALITY

ORIGINAL